MAY 10 1929

PERIODICAL ROOM
GENERAL LIBRARY

Teachers College RECORD

May 1929

CONTENTS

State Participation in the Financing of Junior Colleges *Paul R. Mort* 745
The Movement Toward Scientific Salary Schedules *James R. McGaughy* 752
The Sampling Problem in Educational Research *Helen M. Walker and Students* 760
The Scope of Desirable Flexibilities in Junior High School Curricula . . . . . *David Snedden* 775
The Correlation of Design and Handicraft *George J. Cox* 783
Bases for Standardizing and Accrediting Colleges *F. B. O'Rear* 788
Index Numbers of Costs in Education . *Harold F. Clark* 794
Mathematics in the School of the Future *Eugene Randolph Smith* 795
Opportunities for Transfer Making in Elementary Mathematics . . . *Joseph Jablonower* 808
New Studies in Education 819
College News 827
Alumni Activities 852

BUREAU OF PUBLICATIONS
TEACHERS COLLEGE COLUMBIA UNIVERSITY

$2.50 a Year *35 Cents a Copy*

TEACHERS COLLEGE RECORD

VOL. XXX, NO. 8 MAY, 1929

WILLIAM F. RUSSELL, *Editor*
Dean of Teachers College

CLYDE J. TIDWELL, *Managing Editor*
Director, Bureau of Publications

THE TEACHERS COLLEGE RECORD is issued eight times a year, monthly except June, July, August, and September. The subscription price is $2.50 per year; foreign postage, 50 cents; Canadian postage, 30 cents. Single numbers are 35 cents each, postpaid.

Publication office, Federal and 19th Streets, Camden, N. J., and 525 West 120th Street, New York City. Editorial and general offices at the latter address. Printed in the United States of America.

Entered as second class matter March 17, 1926, at Post Office at Camden, N. J., under the Act of March 3, 1879.

Copyright, 1929, by TEACHERS COLLEGE, Columbia University.

PSYCHOLOGY

The Science of Mental Activity

By

FREDERICK H. LUND, PH.D.

Professor of Psychology in Bucknell University

A comprehensive introductory text for beginners, amply illustrated, and presented in very readable and systematic form

"All teachers of psychology will welcome any new text which combines, as does this, an impartiality of view with a sense of order."—*Harry L. Hollingworth, Columbia University.*

"I am glad to express my appreciation of Dr. Lund's textbook on Psychology. It is an impartial presentation of important facts and principles which form a reasonable body of truth for a first course in psychology."—*Professor Edward L. Thorndike, Columbia University.*

"It aims at the preservation of the rich fruits of psychology since Aristotle. What an improvement this point of view is over that of the radical behaviorist who takes pride in disregarding everything in psychology older than ten years."—*C. O. Weber, Wells College.*

488 Pages - Illustrations - $2.50

A. G. SEILER, *Publisher*

1224 Amsterdam Avenue **New York**

NEW AND OUTSTANDING

ELEMENTARY PRINCIPLES OF EDUCATION

by Thorndike & Gates. $1.60

THE TEACHING OF ENGLISH IN THE ELEMENTARY AND THE SECONDARY SCHOOL (*Revised*)

by Chubb

In press

HUMAN BEHAVIOR (*Revised*)

by Colvin & Bagley. $1.60

THE QUESTIONNAIRE IN EDUCATION

by Koos. $1.25

TESTING INTELLIGENCE AND ACHIEVEMENT

by Levine & Marks. $2.00

SCHOOL CLUBS

by McKown

In press

PROGRESSIVE PRACTICES IN DIRECTING LEARNING

by Palmer

In press

THE MACMILLAN COMPANY

New York Boston Chicago Dallas Atlanta San Francisco

DORRIS—VISUAL INSTRUCTION IN THE PUBLIC SCHOOLS

"By far the most valuable and suggestive treatment of the subject."

This book is one of the Sixty Best Professional Books of 1928 selected for the A. L. A. and the N. E. A. It discusses the background of visual instruction in modern educational procedure; visual instruction applied to the teaching of the various subjects of the curriculum; and administrative problems. $2.64

REEDER—THE BUSINESS ADMINISTRATION OF A SCHOOL SYSTEM

"Made up of every practical material not available elsewhere."

A readable, practical consideration of the problems of the business administration of city and rural school systems. The author approaches the subject with a rich background of study and a thorough understanding of situations in many communities. $2.40

GINN AND COMPANY

Chicago Dallas Atlanta San Francisco

CLARK WILLIAMS & CO.

Members New York Stock Exchange

160 Broadway New York City

VOLUME XXX NUMBER 8

Teachers College
RECORD

May, 1929

STATE PARTICIPATION IN THE FINANCING OF JUNIOR COLLEGES

By PAUL R. MORT

Associate Professor of Education, Teachers College

THE problem of financing junior colleges in those states that have assumed responsibility for higher education is complicated by the fact of state support of these higher institutions. It is conceivable from the present trend that after a period of experimentation the state may take any one of the following three positions toward the junior college movement:

1. The substitution of a state-wide system of junior colleges for the first two years of the university, to be supported by the state and to be controlled by boards similar to normal school boards or by chosen local boards of education.
2. The withdrawal of the state from the field of college education of the first two years, leaving the offering of these years of schooling to the local districts.
3. The elimination of tax-supported junior colleges.

Since the development of such schools under local school auspices has assumed the right of the locality to offer such education as something in advance of the state minimum program, the present trend of thought of those who have set up junior colleges in public school systems is in the direction of the second result listed above. It is in this field that the financial issues arise, since according to the first or third development the financial responsibility is purely state in nature, the first being, so far as finance is concerned, simply an exten-

sion of the present plan of state support for universities and normal schools, and the third giving rise to no new financial problems.

FINANCED AS PUBLIC SCHOOLS

The financial plan for the second eventuality is comparatively simple once the complete plan is adopted. When universal provision of junior college opportunities becomes a fact in a state the financing system would provide for the distribution of the burden of support of a minimum program upon all of the people in all localities according to their ability to pay taxes.[1] This could be done by complete state support or by supplementing a local tax by state support. Under the latter plan the local tax could properly be no greater than that required to support the minimum program of junior college opportunities in the wealthiest district. In effect it would simply mean the increase of the local minimum tax for the support of the minimum program of elementary and high school education by enough to support the minimum program on the junior college level in the wealthiest district. Theoretically, any rate smaller than this rate necessary to support the minimum program in the wealthiest district could be used, so far as equalization is concerned.

In deciding whether the added burden to the minimum program would be supported by more than the minimum amount of state aid necessary for equalization, the deciding criterion is the status of the relative burden of taxation upon local and state sources. More often than not the answer will probably be to divide the support between local and state sources in much the same proportion as the support for elementary and high schools.

LIMITS ON STATE AID

In most cases a system of financing the junior colleges as a part of the public school system will result in but little additional state aid to wealthier districts. With this ultimate picture in mind let us see what conclusions may be drawn with respect to the participation of the state in the financing of the junior colleges in their present sporadic period of development—what we may think of as their experimental period.

[1] Mort, Paul R. *State Support for Public Schools.* Bureau of Publications, Teachers College, Columbia University, 1926.

In the first place, if the state's share of the burden of supporting junior colleges in the long run is not to be unnecessarily large, the amount of aid granted to rich districts should be no larger than the amount that would be granted under an equalization plan that would use the minimum of state aid. In the proposed plan for Kansas, for example, the wealthiest county in the state would receive twenty per cent of the cost of the minimum program. The ultimate financing plan for junior colleges would therefore not pay from the state funds much more than twenty per cent of the cost of the minimum program for junior college education in communities of wealth comparable to that of the wealthiest county in the state.

The proposed plan sets up as an objective a minimum program costing $1500 for an elementary teaching unit and $2000 for a high school teaching unit. If we thought of the junior college plan ripening to a state-wide plan as soon as this objective is reached, we would, so near as could be estimated by cost figures now available, provide a junior college minimum program of approximately $3000, or $150 per pupil in the larger schools.

If the wealthiest district were to receive twenty per cent of this amount when the state system is in operation, it would receive $30 per pupil. From this we may conclude that whatever is done in the way of offering aid to junior college districts should not greatly exceed $30 per pupil in the larger schools. If a greater amount is paid it should be with the understanding that it will be necessary in the future either to reduce the amount or to throw upon the state a larger share of the burden of public school support than is contemplated by the present financing plans.

FINANCING EXPERIMENTAL SCHOOLS

With this as a limit for the wealthiest district, let us examine the bases upon which the state is justified in granting aid at the present time, assuming that it is not yet ready to adopt a new state-wide policy with respect to the manner in which the first two university years are to be offered.

The state may legitimately take an interest in the junior colleges from the standpoint of experimenting with a new type of organization. In doing this it could postulate a state-wide plan and then participate in the organization of sufficient units to make possible a

reliable judgment as to the success of such a plan after a period of experimentation of from five to ten years. Choosing the districts with the idea of trying out the new organization under all of the major situations that would need to be considered in coming to a final reliable judgment, it would be justified in making such offers of participation in support for this limited period of years that would make possible a fair trial of the plan in such places. This might conceivably be complete state support. Under such circumstances, the step should not be taken without providing for a rigid method of checking up results by adequate research agencies—perhaps a commission to employ specialists from the state university, from the state department of education, and elsewhere. Such undertakings would be begun with the understanding in the communities that the experiment has a definite time limit and that the system of supporting such schools is temporary and may well be supplanted by a system at the end of the period that would bring to the community a materially smaller degree of state support.

Under this plan only those districts chosen for the state experiment would participate in state aid for junior colleges.[2] Such a plan would be justified in the same way that experimental work of an agricultural college is justified. It is the only basis upon which special aid for new projects can be justified.[3] With regard to this point, the 1925 Report of the Special Joint Committee on Taxation and Retrenchment of the State of New York has the following to say:

> It might be possible to defend a proposal that the state stimulate progress by devoting considerable funds to educational experiment, that is, that it might select projects of an experimental character for trial in various communities, such experiments, however, to be supported under carefully controlled conditions and the projects selected primarily with reference to their promise from the viewpoint of yielding evidence as to the value of methods as possible additions to the offering to be made available throughout the state. The dedication of a relatively small sum to such purposes would seem to be far more promising of fruitful results in the direction of educational progress than a blanket offering to assist any community which would pay part of the cost to establish extensions of their educational system which are still in the experimental stage.

[2] Unless the experiment was supplemented by the second plan to be presented.
[3] Neulen, Lester N. *State Aid for Educational Projects in the Public Schools.* Bureau of Publications, Teachers College, Columbia University, 1926.

ADJUSTMENT FOR SHIFTED ENROLLMENT

A second basis that opens the way for aid to all junior colleges now or hereafter established has some merit. One of the criteria for selecting costs chargeable against the state minimum program may be stated as follows:

> Any activity or opportunity offered in lieu of any element of the minimum program which is universal throughout the state may be considered a part of the minimum program for the district concerned.[4]

According to this criterion, any work offered in junior college that is offered in lieu of high school opportunities is acceptable as a part of the minimum program. Inasmuch as it is the claim of the protagonists of the junior college movement that the junior college gives an outlet for the pupil who is capable of taking less than the normal time in the elementary and high school, we might expect to find in the junior college a very considerable number of pupils who would have remained in high school for a longer period had not the junior college opportunities been made available.[5] In other words, the system of counting pupils enrolled in grades nine to twelve only in figuring the cost of a minimum program would seem to favor the community that enriches its program laterally and tends to penalize the community that offers comparable opportunities as a junior college.

A fairer way would be to define the upper limit not by grade, but by age. According to present-day theories of progress, the state would be justified in recognizing a spread of twelve years, allowing for no retardation. But difference in policies in age of entrance come in to complicate the problem of determining the highest age to be counted. As a matter of fact it makes no difference except for those who graduate from high school retarded or accelerated, whether age or grade is counted.

Until an exact solution of this problem has been developed, it would doubtless be better to err upon the side of favoring the district that offers more extended secondary training than on the side of requiring it to suffer a loss because of its progressive form of organization. This could be done by permitting school systems with junior colleges

[4] Mort, Paul R. *An Analysis of the Problem of Distributing State Subsidies to School Districts in Pennsylvania.* Report of the Commission to Study the Distribution of State Subsidies to School Districts, 1929.

[5] Koos, L. V. The *Junior College Movement.* Ginn & Co., 1925, p. 27.

to count at least a part of their junior college enrollment in with the high school enrollment in computing the cost of the minimum program of high school education. This would allot to a community offering junior college education an amount equivalent to the cost of a minimum program for a number of high school pupils equal to the number of junior college students selected.

In order to discover to what degree this element should be taken into consideration, on a recent study of educational finance in Kansas [6] a study was made of the ages of pupils enrolled in November 1928 in Grade 12 in twenty-two Kansas school systems in which no junior college is provided. A similar study was made of students enrolled in the junior college grades and in Grade 12 in ten Kansas communities which have junior colleges. The ages computed as of December 1, 1928, show the following central tendencies:

Non-Junior College Group	Median	Mean
Grade 12	17.7	17.8
Junior College Group		
Grade 12	17.6	17.7
Junior College Freshmen	18.7	19.0
Junior College Sophomores	19.8	20.0

This, together with a more detailed analysis of the distribution, indicates that there is a slight tendency for the non-junior college high school senior group to be older than the pupils of corresponding grade in the systems having junior colleges. The amount is not a marked one, however. There is indication that either the claim discussed above does not hold true in any marked degree for Kansas junior colleges or these junior colleges have not been in operation sufficiently long to have their expected effect. It is obvious that the large mass of junior college boys and girls are students of more than high school age. A combination of the Grade 12 and junior college freshman group gives a median age of 18.0, which is three-tenths of a year higher than the median age of Grade 12 in the systems where no junior colleges are provided. To permit school systems having junior colleges to count junior college freshmen upon the same basis as high school pupils would therefore raise the age level to a point

[6] Mort, Paul R. *A Plan for Providing Equality of Educational Opportunity in Kansas.* State School Code Commission of Kansas, Supplement to Vol. II, 1929.

where it would more than offset the loss resulting from the introduction of the junior college. It would leave sufficient leeway to permit a more extended operation of the acceleration feature without penalizing districts having junior colleges.

It is therefore recommended that an equalization law be written in such a manner as to recognize on the high school level all pupils enrolled in the freshman grade of the junior colleges.

SUMMARY

Only one of the probable plans for the eventual control of junior colleges introduces financial complications. This is the plan of control as part of the public school system. Under such control the junior colleges should be financed as a simple extension of the public school system. Any immediate steps to give state aid to a junior college developed within local school systems should therefore be related to the probable developments in public school finance.

In their present stage, the state is justified in rendering financial assistance to junior colleges organized within local school systems, either as state supervised and controlled experimentation, or in recognition of the loss of high school attendance resulting from the establishment of junior colleges.

In adopting a plan of support for the experimental development of junior colleges, the state is justified in going any distance in the support of selected schools. In recognizing the loss in high school attendance due to the establishment of junior colleges, school systems having junior colleges may well be permitted to count freshman junior college students as additional high school attendance.

THE MOVEMENT TOWARD SCIENTIFIC SALARY SCHEDULES*

By JAMES R. McGAUGHY
Professor of Education, Teachers College

WE ARE going to propose this morning that there is a marked and important movement toward the building and adopting of salary schedules which are scientifically sound. At the same time we are going to take the anomalous position that no one yet knows what a sound salary schedule is. In defense of this paradoxical stand we call your attention to the fact that the old days are well-nigh gone when a teacher's salary was based on some whim or hunch of the Superintendent of Schools or of some member of the Board of Education. The greater number of our public school teachers now receive salaries which are fixed impersonally and objectively. This fact justifies our first statement, for no salary schedule can be sound if it is based on whim or caprice and guess work. Our defense for the second statement—that no one yet knows when a schedule is sound scientifically—will be taken up in detail in the remainder of this discussion.

In the past three years the speaker has been associated with a study of teachers' salaries in three large cities, New York City, Pittsburgh, and San Francisco. Each of these studies was heralded and defended as a scientific solution of the problem, but the schedules arrived at bore little resemblance when the three studies were completed, nor was any one of them more than a second cousin to the so-called "single salary schedule" which is sometimes defended as a scientific solution of the salary problem. Some of these differences resulted from a sensible adaptation to differing local situations. No director, even of a scientific study, would willingly be foolish enough to propose an idealistic scheme which had not the remotest chance of acceptance by a Board of Education or by the teachers themselves. That would be an unwarranted waste of money and energy. Never-

* This paper was read before a session of the American Educational Research Association at the Public Auditorium in Cleveland, Tuesday, February 26, 1929.

theless, the outstanding differences in the three plans adopted were the result of honest differences of opinion among competent people as to what constitutes a scientifically sound basis for determining teachers' salaries.

Each of these three committees apologized, publicly or privately, for their failure to recommend a single salary schedule on the grounds that the local situation was such that it had no possibility of acceptance by the Board of Education, by the teachers themselves, or by the general public. Please do not take this to mean that any one has yet determined a sound basis for constructing a single salary schedule or that the three widely differing plans recommended were simply concessions to different problems and points of view.

It is agreed that teachers with equivalent qualifications shall be paid identical salaries under a single salary schedule whether they be elementary or high school teachers, but no one has determined what factors shall enter into these qualifications which are to be judged equivalent. No one has determined how many levels there shall be in this schedule or what shall be the minima, the annual increments, or the maxima of each of these levels, nor how to adjust these amounts to a local situation in terms of the cost of living, or the supply of teachers available, or any of the factors which should result in different salaries being paid in different cities. It certainly would be proposed by no one that the teachers under a single salary schedule in Selma, Alabama, should receive exactly the same salaries as the teachers on a single salary schedule in New York City.

As an indication of the wide differences in supposedly scientific solutions of the teacher salary problem we shall report to you some of the essential characteristics of the three plans proposed in New York City, Pittsburgh, and San Francisco. Two committees worked on the problem in New York City. The first committee, known as the Citizens' Committee on Teachers' Salaries, Robert E. Simon, Chairman, spent more than a year in time and $15,000 in cash in making the first scientific attack upon the teacher salary problem in New York City. The speaker was the director of this study. Later an official committee, known as the Mayor's Committee, also made a careful study of the problem but accepted the facts and most of the principles laid down by the Citizens' Committee. The recommendations of this second committee differed in some essential points

from the earlier report but they were so similar that we will not complicate this presentation by contrasting them. Instead, we will present only some features of the pioneer plan of the Citizens' Committee.

I. NEW YORK CITY PLAN

We will take time for only two of the characteristics of the New York City plan. New York State has a law which makes equal pay for men and women teachers mandatory. The Citizens' Committee secured detailed facts concerning the expense for food and housing for each of six economic groups in every department of the public school system. The committee assumed that the expense for these two necessary items should not be less than 55 per cent of a teacher's total cost of living. It then proposed that the salary of any group of teachers—for instance, teachers in the senior high school—should be high enough that the indispensable economic group whose living expense was highest could live decently and comfortably in New York City. In the case of high school teachers it ruled that men teachers were indispensable in public high schools and, accordingly, chose married men high school teachers with one child as the basic group to whom was adjusted the salary schedule for all high school teachers, men and women alike. This undoubtedly resulted in overpayment, economically, of a large group of women high school teachers, but the state law requiring equal pay is responsible for that defect. On the other hand, the committee ruled that men teachers were not indispensable in grades Kindergarten to 6B, and based the elementary school salaries on the living expenses of single women living away from home, since their cost of living was found to be the highest.

The second characteristic of the New York plan is the recommendation of super-maximum salaries. This was an attempt to secure certain advantages of the single salary schedule without stirring up the active opposition of a large majority of the teaching body. The high school teachers had a natural fear that the single schedule would result in a leveling downward of their salaries, and the political leadership of the elementary teachers is in the hands of old lady teachers who could not possibly profit from a salary schedule which gave weight to professional training.

In general, three annual increments above the regular maximum salary available to all teachers in each group were to be paid to those teachers who secured as much as one year of professional training beyond the present minimum qualifications for the license under which they were teaching. The present minimum requirement for elementary teachers in New York City is three years of training beyond high school graduation. Elementary teachers now in the system or those having only this minimum training would go up to a regular maximum of $3060. Those having four years of training beyond high school, or its equivalent, would reach a super-maximum of $3708. Regular senior high school teachers with four years of training would reach a regular maximum of $4560, and those with five years or its equivalent, a super-maximum of $5316. The maximum salaries for junior high school teachers were about midway between those for the elementary and senior high school groups. The committee regretted the establishment of so large a differential between elementary and high school teachers, but with the state law demanding equal pay for men and women, and with the violent opposition of the teachers to the single salary principle, it was forced to make the recommendations as given.

Minor features of the New York plan were small annual increments for the first three years, followed by larger increments later. Furthermore, all of the annual salaries proposed were multiples of twelve, because annual salaries of New York City teachers are paid in twelve equal installments.

II. PITTSBURGH PLAN

The salary study in Pittsburgh was also made by a Citizens' Committee financed by voluntary subscriptions. The director was Professor Charles Reitell, of the University of Pittsburgh. The outstanding feature of the Pittsburgh plan is the establishment of five "superior teaching levels" above the normal maximum for each group of teachers. The normal maximum for elementary teachers was raised from $2000 to $2200. Not more than 45 per cent of this teaching group are to be paid salaries higher than this automatic maximum. One-third of these, or 15 per cent of the total number of elementary teachers, may be advanced to Superior Teaching Level No. 1 at $2400. There are four more increments of $200 for each

higher level until Superior Teaching Level No. 5 is reached at a salary of $3200. Of the total number of teachers, 12 per cent may be on Level No. 2, 9 per cent on No. 3, six per cent on No. 4, and three per cent on No. 5.

The automatic maximum beyond which 55 per cent of the senior high school teachers may not go is fixed at $3200, the former maximum salary. For this group an increase of $200 for each superior level is proposed, so that not more than 3 per cent of the total number of senior high school teachers may arrive at Superior Teaching Level No. 5 with a salary of $4200 a year.

The second essential feature of the Pittsburgh plan is the establishment of a special administrative department under the direction of an "Associate Superintendent of Schools in Charge of Personnel." This department is to be given responsibility for the selection of new teachers entering the system, for the assignment of all teachers, and for the administration of the "superior level" feature of the plan.

It is difficult to characterize briefly the proposed administration of this superior level plan in Pittsburgh. In general, it may be said that a great deal of subjective opinion of principals and supervisors is to enter in, but that there are certain definite requirements of additional amounts of professional training beyond the minimum requirements for certification which will be demanded at various levels. For some of the lower levels many years of experience are to be accepted in lieu of the professional training required.

In passing, it may be said that the New York plan definitely barred from consideration any subjective evaluation of teaching efficiency. The Citizens' Committee felt that any gain in justice to individual teachers would be more than offset by the feeling that favoritism or political pull might have a place in determining a teacher's salary.

III. SAN FRANCISCO PLAN

The San Francisco study was authorized by the Teachers' Consolidated Salary Study Committee. The directors were Professors Hart and Peterson of the University of California. The San Francisco Board of Education already has a Department of Personnel. The plan recommended for that city follows the Pittsburgh proposal by giving this Department of Personnel the responsibility for the administration of the salary schedules. The San Francisco plan

follows the New York plan by recommending small annual increments in the early years of service, thus reserving for permanent teachers who are making the profession their life work the largest possible amount of the total salary monies available. The normal maximum salary proposed for elementary teachers is $2928. This salary may be attained in the thirteenth year of service. The first four salary increments are automatic. A teacher may not secure the fifth increment unless she has completed a specified amount of professional training during the five years preceding. Again, at the tenth year of service the teacher is held up unless she has completed another specified amount of professional training in the preceding five years. The eleventh and twelfth increments are automatic. The plan proposed for junior high school teachers is much the same as for elementary teachers, but the normal maximum is $3492—$560 above the elementary school maximum.

The scale for senior high school teachers runs up to a normal maximum of $3900, following much the plan of the other two scales. Then the Pittsburgh idea of superior teaching levels is introduced and there are two increments of $180 each to which senior high school teachers may be promoted on account of "superior training and distinguished service." Only teachers holding a master's degree in the field of their major teaching interest are eligible for these two higher levels, but, as in Pittsburgh, their promotion is further based upon the recommendation of the Department of Personnel.

A unique feature of the San Francisco plan is a provision that an elementary teacher who has taught for two years at the normal maximum of $2928 and who has the equivalent of five and one-half years of approved training beyond high school graduation, may, upon the recomemndation of the Department of Personnel, the approval of the Superintendent of Schools, and special action of the Board of Education, be transferred to the tenth year level of the junior high school teachers' salary scale from which level progress may be made as in the case of junior high school teachers, except that approval of the Department of Personnel shall be in terms of elementary teaching. Such a transfer would increase this teacher's salary $60 the first year and $168 for each of three more years, until she reached the junior high school maximum of $3492. In like manner teachers on junior high school scale who have taught two years at

the maximum salary and have satisfied certain professional training requirements may be transferred to the senior high school scale and proceed to the normal maximum of $3900 or even to Superior Teaching Level No. 2 of $4260.

Another feature of the plan is that though most of the annual increments are called "automatic" any teacher may have her increment withheld if the Department of Personnel rules that her services for the preceding year have been unsatisfactory. This indicates that as in Pittsburgh, and in contrast to New York, the subjective opinion of principals, supervisors, and officers of the Personnel Department is to play a large part in the administration of the plan.

IV. SUMMARY

The three plans outlined above represent the most recent attempts at scientific schedule-making of which the speaker has intimate knowledge. It will be noted that they differ in some important essentials, yet there is a good deal of likeness among them. In each case the desirability of requiring continued professional training is definitely accepted. In no case is the maximum salary reached until after ten or twelve years of teaching experience. Equal pay for men and women is incorporated in all of them, but in each case it was mandatory because of state laws or regulations of the Board of Education. Differentials in salary between elementary, junior high school, and senior high school teachers are incorporated in each plan, but under protest of the directors of the studies on account of the refusal of the teachers concerned to accept the principle of the single salary schedule. The only exception is in the case of the New York City study where the committee made a definite recommendation that the principle of the single salary schedule be put into effect not later than 1930. This recommendation was made on the assumption that in the four years intervening the Board of Education could assemble the necessary data concerning teachers to make possible its administration, and that within that period the teachers could be educated to the desirability of the plan.

It is the speaker's belief that the major obstacle to scientific schedule-making is now found in the state laws which make equal pay for men and women mandatory, and in the sentimental acceptance by the teachers themselves that this principle is sound professionally

and economically. We believe that there is no sound argument, professional or educational, in favor of paying men teachers higher salaries than women. Men are not better teachers; they do not render more valuable service; even if they have more dependents, that is not a sound argument for paying them higher salaries. The one insurmountable fact which makes it absolutely necessary, economically, to pay men higher salaries is the inexorable working of the law of supply and demand. So long as our professional and industrial organization remains as it now is, there is bound to be a greater demand for the services of able young men than for the services of equally able young women. For the state to pass a law that men and women must be paid equally is almost as absurd as it would have been for the State of Indiana to have enacted into law a bill that was introduced a few years ago to change the value of the ratio between the circumference and diameter of a circle to 3.0 instead of 3.1416+. Under equal pay one or both of two unfortunate situations must exist: inferior men will be drawn into our junior and senior high school teaching positions and the cause of good education will suffer, as it is now suffering in many communities for this very reason; or women teachers will be overpaid in the economic sense. No Board of Education has the moral right to pay women teachers higher salaries than the economic demand for their services justifies. To do so is just as pernicious as to waste public money upon some other project for which there is no such well-organized, sentimental propaganda.

We will not achieve salary schedules which are economically and scientifically sound until we learn to conduct salary campaigns on some basis other than demanding special privileges for our profession. Sentimental hysteria about noble, self-sacrificing service which we render and the supposed fact that we in our profession are chosen of God, somewhat as ministers are, should have no place in an earnest consideration of the salaries which should be paid to the members of a respectable and self-respecting profession. Furthermore, it is our belief that the use of intimidation and of political pressure to secure salary increases, as these have been used by certain groups of teachers in New York and in other cities, has done more to bring our profession into the contempt of sensible people than many years of devoted public service by thousands of good teachers can counterbalance.

THE SAMPLING PROBLEM IN EDUCATIONAL RESEARCH

By HELEN M. WALKER

Associate in Educational Measurement, Teachers College

AND STUDENTS IN ELEMENTARY EDUCATIONAL STATISTICS

THE investigator who has conducted a piece of research with a limited group of individuals and who wishes to generalize the results of that research, applying them to a larger population of which his group is a part, is faced with urgent questions concerning the adequacy, the representativeness, and the randomness of his sampling. The manner in which a sample is to be chosen is a practical problem of maximum importance to every person conducting research with data from mass phenomena, for an intricate piece of research, conducted with care in all its subsequent details, may fail to be of general significance because the individuals employed were selected in such a fashion that the sample can be considered as neither random nor typical.

Questions of adequacy relate chiefly to the size of the sample, and must be answered for each individual problem in the light of the degree of precision which the investigator wishes to secure. Representative sampling is not synonymous with random or simple sampling, the latter having a technical meaning which differentiates it sharply. One of the first obligations laid upon one who works with mass data is to define the population to which he expects his results to apply, and in that definition he is at liberty to limit the scope of his work as narrowly as he desires. Having defined the population, he may make a study either of the entire population or of a sample selected from it. In many cases the most satisfactory procedure may be for the investigator to exercise his best judgment and expert knowledge of the situation to choose the cases which shall constitute the sample, selecting them in such a way that they represent fairly all portions of the population to be studied. A sample chosen in this way may be typical, it may be adequate, it may be representative,

but it is probably not random and should not be spoken of as random.

The formulas for the probable errors of such frequency constants as a mean, a median, a standard deviation, a difference, a coefficient of correlation, and the like, are all based on the assumption of random sampling, or simple sampling as it is often called. There are three criteria which must be observed in order to have simple sampling, and if any one of these limitations is removed, the probable errors of the frequency constants will be affected. Unfortunately these conditions are of such a nature as to be more clearly defined in the breach than in the observance, and while you may prove that another person has violated them, you can never demonstrate that you yourself have fulfilled them. The criteria are as follows:

(1) The chance to be chosen in a particular sample must be uniform for all members of the total population.

(2) The chance for a given member of the total population to be chosen must be constant from sample to sample.

(3) The chance that a given individual shall be included in a sample must be in no way affected by the previous choice of another individual.

These criteria can best be clarified[1] by an illustration which is purely artificial and badly timeworn. Let us assume that a jar is filled with black and white balls in unknown proportions, and that a sample is to be drawn for the purpose of determining the relative number of balls of the two colors. Criterion (1) would be violated if the white balls were of marble and the black ones of iron, and if the sample were taken out in a cup part of which had been magnetized; or it would be violated if one set of balls were highly polished so that they tended to slip through the fingers and the other set rough and easy to grasp. This criterion is usually violated in questionnaire studies, no matter how carefully conducted. Criterion (2) would be violated if more black balls were added to the jar after the first sample had been drawn out; or, the balls being partly of marble and partly of iron as described above, if one sample were drawn by means of a magnetized cup and the next sample taken in

[1] The way in which the probable error of sampling is affected by the breaking down of these conditions was treated by Wilhelm Lexis in his *Massenerscheinungen* (1877). The reader who is interested in the general theory is referred to Arne Fisher's *Mathematical Theory of Probabilities* (1926), chapter X; to A. L. Bowley's *Elements of Statistics* (1926), pages 277-286; and especially to G. Udny Yule's *Introduction to the Theory of Statistics*, chapters XIII, XIV, and XVII.

the hands. This criterion should be considered very carefully whenever two different groups are to be compared in any way. Criterion (3) would be violated if some of the balls were strung on strings and the rest were loose in the jar. Thus if the black ones were placed four on a string and the white ones were mixed in singly, each time a black ball was selected by chance, three other black balls would be included as well.

As one of the assignments in the course in Elementary Educational Statistics, the students were asked to submit an illustration of a violation of each criterion for simple sampling. These illustrations might be taken from their own experience, culled from reports of experimental investigations, or be entirely imaginary. A committee of class members then went over the material submitted and selected the illustrations which follow as examples of fallacious procedure in the matter of sampling.

This anthology of violations is not intended to constitute a "random sample" of all the possible types of sampling error or of the various fields in which sampling errors occur. Inasmuch as most of the students in the class are specializing in some phase of education, most of the illustrations submitted were from this field. For obvious reasons those illustrations which pointed out the faults and failings of published researches have been omitted.

AGRICULTURE

In a study of the extent to which distributors finance the production of truck crops, which I outlined a number of years ago, one of the field men proposed to secure a sample in his territory by driving along the main traveled road and interviewing all producers living along that route. This would have neglected entirely the farmers living in the more remote portions of his territory, and these very farmers might be the ones most in need of financial assistance.

The fact that an agent doing the field work for farm cost studies had selected certain farmers in studying one phase of the problem would make him more apt to select the same farmers for other studies, although that procedure might not give a random sampling for the other factors.

—C. D. Bohannan

CHILD DEVELOPMENT

Problem: The physical contacts of a group of nursery school children as one measure of their social adjustment.

The aim of the problem is to develop a technique for studying the behavior of preschool children. The sampling is therefore not of these children as representative of any larger group of children, but rather a sampling of the physical contacts of individual children as representative of their total physical contacts at this stage of their lives. It is recognized that this technique should be tried out with a variety of children under a variety of conditions, the only constant element being that at the time of the observation the child's physical contacts represent his total physical contacts.

It was found to be a fallacious procedure to take a sample (that is, to record an observation) while a child was on the swing or using any other kind of apparatus that biased the types of physical contact. For example, a child whose contacts were usually of the aggressive type and who was not the object of coöperative advances from other children showed, during an observation on the swing, 98 per cent of her contacts to be giving or receiving coöperation.

This was overcome by taking samples of contacts only when the child was in a situation apparently giving opportunity for all kinds of contacts. At the sand box, for instance, the records of many children showed that every kind of contact and response occurred. The absolute equality of opportunity could not be proved, but since the situation offered opportunities for all, the sample might be judged as meeting this criterion. In practice, Criterion (1) was met by beginning an observation when a child was in a group where all types of contacts were observed and stopping the observation (limiting the sample) before the usual time if he engaged in any activity which had been proved to have a bias. The time was made up later so that the same total time for each child was used.

It was found that Criterion (2) was violated if samples were taken at the dinner table. The chances were not uniform because the accident of the skill or attitude of the adult at the table determined the child's activity. One adult was found to direct the table group so that the few contacts were helpful ones in passing food, while another adult let a situation develop in which she became the aggressor, pulling at the child while he resisted, thus skewing this sampling.

This was overcome by taking samples only under conditions which seemed to represent reasonably well a spontaneous choice of contact by the child.

Criterion (3) was involved in the following situation. A child who was being observed as to physical contacts did something to another child which would have passed unnoticed by the teacher if she had not happened to be near. Having observed this particular contact, she required the child to sit down alone. Time was counted out during the period of enforced isolation but when the observation began again immediately afterward it was found that the child avoided her usual contacts with other children.

The method of improving the procedure was to discard any observation in which restriction by an adult affected more than the immediate activity of a child and also any in which adult interference was so frequent as to interfere with the child's spontaneous contacts.

—*Alice M. Loomis*

COLLEGE ADMINISTRATION

In a proposed study of the relation between effective college teaching and promotion in salary and rank, the questionnaire might be so worded as to secure responses from only those college administrators who take effective teaching into consideration in recommending advancement.

—*C. D. Bohannan*

COMPARATIVE EDUCATION

From data showing the intelligence and achievement of secondary school pupils in the United States and Germany the conclusion was drawn that German youth are more capable than American youth. In making this comparison the fact was overlooked that a much smaller per cent of the German youth are enrolled in secondary schools than is the case in the United States, and that those enrolled are a highly selected group. Before 1918 secondary education was purposely limited to the children of those social classes which could pay the large school fees. Since the World War a special school has been organized for those children of the common people who show themselves to be especially bright. These children are allowed to go further than the common children, and arrangements have been made in some of the German states for especially bright children to pass over from this type of common school into the *gymnasium*. Hence the children in German secondary schools are far less typical of all the children in Germany of secondary school age than American secondary pupils are typical of children of that age in the United States.

—*J. Flint Waller*

EDUCATIONAL ADMINISTRATION

The method of collecting data from teachers which is frequently employed in school surveys is apt to violate Criterion (3) for a random sample. A bundle of questionnaires is sent to each county superintendent, city superintendent, or principal—as the case may be—to be distributed to the individual teachers over whom that official has jurisdiction. Thus the actual distribution of questionnaires to any particular group depends upon the attitude of some principal or superintendent toward the survey and its personnel, and toward

questionnaires in general. The collection of data is further conditioned by other factors, such as the cordiality of the relationship between a superintendent or principal and his teachers, by the manner in which the material is presented to them, and by his efficiency in distributing, collecting, and returning the material to the survey staff. Thus, while the *average* returns may be very good for a questionnaire study, inequalities of distribution may decrease the value of the replies.

From a practical standpoint this method is the best way of securing information from large numbers of individuals, in spite of the limitation pointed out above. Conclusions drawn from data collected in this manner should be limited to the groups responding or if applied to the entire group should be tentative in character. Whatever measures will assist in developing good will toward the survey should be adopted, since this in turn will tend to improve the quality of the sampling.

—*Elizabeth S. Elsbree*

GUIDANCE

In most teachers colleges the students need much more guidance in the choice of their major fields than they now receive. Administrative officers have recognized this need and to that end have encouraged certain experimentation. It is now proposed that the tracing of case histories of a large number of former students of a teachers college may prove helpful in the solution of this problem.

In selecting the individuals to be studied, one might choose names from the files in the Placement Bureau. This would violate Criterion (1) for random sampling in that not every former student would have a chance to be chosen. Certain large groups of students would never have registered with the Bureau. Among these would be such as the following: (*a*) students who studied at the institution while on leave of absence; (*b*) outstanding students who had been elected to positions without having been registered with the Bureau; (*c*) students who had dropped out of college before having completed enough points to be eligible to register there; (*d*) part-time students holding a regular position in the vicinity.

One might be tempted in selecting the first sample to sort out those who were located near the institution. These could be visited, data obtained at first hand, etc. The second sample might include those living at greater distances, who responded to a questionnaire. These two procedures together would violate Criterion (2) for random sampling; obviously, the first sample would be made up of all who were interviewed, whereas the second sample could not include everyone to whom a questionnaire was sent. It is quite probable that those who replied would represent the ones with the more impressive professional records.

Finally, the procedure proposed for choosing the first sample as described above might lead to a violation of Criterion (3) of random sampling. If the experimenter should find that he had chosen a former student who was teaching in a nearby town, he would quite naturally select others who were located in the same community. By so doing he could arrange to interview and investigate the professional histories of several individuals on one trip. This would constitute a violation of the principle that "the selection of one member must not in any way influence the selection of another."

—W. E. Hager

HEALTH

I plan to make a comparative study of the diet given to children in a particular day nursery, and of the typical diet given to children in the neighborhood. In selecting the families to be studied I overlook the fact that several of them have had children in that day nursery, and that their diet very probably has been influenced by that experience.

I want to make a study of certain dietary habits of 100 children from a public school, and select my cases from the children attending that school who happen to be registered at the health center where I am working. Because the children selected were registered at a health center there is a great probability that they have serious physical defects necessitating special diet or that they are following a more hygienic diet as a result of instruction at the health center than they otherwise would, and hence are not typical of the group I planned to study.

—Mathilde C. Hader

Physical examinations were to be given to the children in all the schools of a certain district. On the day when the examinations were given in the one school, the weather was cold and snowy and consequently many of the children remained at home. Those remaining at home were more likely to be physically defective than those who had gone to school. Hence the children tested in this school did not constitute a random sample of the entire school group. When the test was given in the other schools the weather was fair, and a more representative group of children was present.

—P. C. Weaver

If I wish to check up on the effect of a course of lectures on health, and I count the days absent from school in December as before instruction and the days absent in May as after instruction, Criterion (1) is violated because there

are always many more days of absence in December than in May from causes entirely apart from health lectures.

If I try to rate my girls as healthy or unhealthy on the number of days absent, and an epidemic of mumps occurs during the rating, some would be influenced by the contagion who were otherwise much more healthy than those not influenced, so that Criterion (2) would be violated.

—*Margaret E. Bryson*

HOME ECONOMICS

I want to make a study of the purchasing habits (with respect to food) of a group of housewives in New York City belonging to a certain income class. Without considering that the neighborhood marketing conditions affect the purchasing habits, I have selected some cases from a district having a large push-cart market, some cases from a district where there are many chain stores, and some cases from a part of town where there happen to be only independent grocery stores.

—*Mathilde C. Hader*

INDUSTRY

In reading furnace temperatures the reader read a "hot" and a "cold" furnace alternately without allowing sufficient time for the instrument to cool after reading a "hot" furnace. Here we have readings or samples partially dependent upon other samples.

—*J. Flint Waller*

MEASUREMENT AND TESTING

Let us suppose that I wish to get an idea of the word-recognition ability of the 25,000 first grade children in Detroit. For my purpose I select every fifth school from the list of 185 elementary schools, and send the testing materials to the selected schools, together with a bulletin requesting them to give the test on the morning of Thursday, January 24th. Now, it so happens that owing to the crowded conditions in Detroit, a very high per cent of our first grades are on half-day session schedules. In these schools it is the usual practice to have the slow children come in the forenoon when both the children and the teacher are fresh and to have the brighter children in the afternoon. If I should have the test given in the forenoon only, I would violate the principle which demands that every individual in the group have the same chance of being chosen.

—*Nila B. Smith*

A state inspector gave Stanford Achievement Tests in the third, fifth, and seventh grades of a school system on a day when many pupils had "cut," because, though not a school holiday, the day was a state holiday. It so happened that the pupils staying out were on the average poorer in achievement than those in attendance that day, and hence the school was rated too high through incorrect sampling.

—J. Flint Waller

Suppose that I wish to get a check on the reading comprehension of the third grade children in a certain city. I accordingly turn to the West Side, asking for volunteers to give this reading test to the third grade. Perhaps 25 or 50 teachers will volunteer and proceed to give the test. Possibly a month later I find that I have to have more data from which to select samplings till such time as several successive samplings will yield about the same results. Having called for volunteers from the West Side previously, I will now call for volunteers from the East Side and in this way obtain more testing material. Samplings obtained under these conditions would not be comparable at all because of the following differences in the two sides of the city:

The East Side population is made up almost entirely of foreign factory workers, while the West Side consists almost altogether of American middle class and higher class people; our schools on the West Side are nearly all platooned, while the schools on the East side are largely of the traditional type. Furthermore, the children in the group taking the second test would have had the advantage of a month more of instruction than the children who were included in the first group. The conditions are entirely different in the two situations.

—Nila B. Smith

In a public school system of 16,000 pupils an investigator wanted to obtain a random sampling of the arithmetic ability of the fifth grade pupils. He sent letters to all the fifth grade teachers stating his purpose and asking that those teachers who were willing to have their arithmetic classes tested in mixed fundamentals and in problem solving should so signify. He stated in his letter that he expected to test only about 60 per cent of the fifth grades. All the teachers who had good fifth grades were willing to have them tested, and all those teachers who had poor fifth grades were unwilling. Consequently, the fifth-grade pupils actually tested constituted a selected group rather than a random sampling.

—W. C. McGinnis

If a person were attempting to make a study of the abilities of eighth grade pupils in composition writing and asked every school in a county to send in ten specimens, chosen at random, the chances are that many teachers would select ten good specimens to represent the school instead of any ten. The poorer writers of compositions would have no chance to be chosen in such a scheme.

—L. M. Schleier

Wishing to compare the mean I.Q. of pupils in a vocational high school with that of pupils in a regular high school, the authorities administered the Otis Group Intelligence Test to all pupils in both high schools. It was known, however, that 27 per cent of the pupils in the vocational school were of foreign parentage, while only 1 per cent of the pupils in the other school were of foreign parentage. Hence Criterion (2) was violated, because the handicap due to poor mastery of the English language was not constant in the two samples.

—J. E. Scott

A recent study involved a comparison of the intelligence of American and Mexican children. The Stanford Revision of the Binet-Simon test was given to 150 children of each group in a certain locality of a border state. The results were as follows:

	Americans	Mexicans
Average I. Q.	103.6	90
Range of I. Q.	60.5–154.8	21.7–143.1

Even if this were a fair comparison of the Americans and Mexicans of that locality, the Mexicans certainly having a language handicap, it would be unfair to the latter as a people, for the Mexicans of that particular locality are largely drifters who come in for the harvest of the cotton season, and are not representative of the nation as a whole.

A character test was given to 300 students in High School A, to 250 students in High School B, and to 400 students in High School C. The test results were compared and combined in a study on high school students. The fact was not considered that High School A was coeducational and consisted of the tenth, eleventh, and twelfth grades, while High School B was for boys only, and High School C included the ninth grade. *—R. F. Street*

The Army Intelligence Tests Alpha and Beta were standardized for adults on the assumption that the million and three-quarters men to whom the tests were given constituted a random sample of the adult male population in the United States. There were, however, a number of selective factors at work in the determination of the individuals who composed this group. For example the following classes of people were not included: inmates of prisons, asylums, and other institutions for defectives; physical defectives; key men in business and industry; conscientious objectors; men who were supporting a family. Hence, strictly speaking, the men who took the army tests did not constitute a random sample of the population, since every member of the population did not have an equal chance to be included.

The psychologists recognized the fact that this group was not really a random sample, but got around the situation by assuming that the classes which were not represented distributed themselves in intelligence according to the normal curve, so that the various groups omitted offset each other. If this latter assumption were true, the army men constituted a "fair sampling," if not a random sampling. The Army Tests offered the best opportunity ever afforded for standardizing an intelligence test for adults, so that from a practical standpoint the psychologists were probably justified in their assumptions.

—Elizabeth S. Elsbree

NORMAL SCHOOLS

Some years ago data for a master's thesis were collected by means of a questionnaire. The subject was a study of the normal schools of the country with reference to the age, academic and professional training, experience, salaries, and teaching load of the faculties. The questionnaire was sent out through the Bureau of Education with the thought that more complete returns would thus be obtained. A list of normal schools was secured from the report of the Commissioner of Education and blanks were sent to the president of each school with the request that they be filled out by each member of the faculty. Returns were obtained from about two-thirds of the schools, but many of the schools which responded did not return a blank for every member of the teaching force and even on those returned, many items were omitted. In this, Criterion (1) was violated. The group of schools represented in the returns is not a random sampling of the entire normal school population. The returns probably came largely from those schools where conditions were most favorable. Also the incomplete returns from the various schools were undoubtedly due to the omission of reports from the teachers who were inferior in preparation, whose salaries were low, whose teaching load was excessive, etc.

—Sue S. Perkins

NURSING

The board of examiners in two different states, A and B, plan a test so that they may compare the average length of time it takes a nurse to make a hospital ether bed in each of the two states. A's sample of 100 nurses is selected from 1000 nurses assembled at the capitol for their state board examinations, all of whom have been graduated within the preceding six months. B's sample of 100 nurses is selected from 1000 nurses on the registries of the state. These nurses have been graduated from their nursing schools over periods ranging from 6 months to 20 years. Some have practiced in homes, some in hospitals, and some have been unoccupied for various reasons from one-quarter to three-quarters of the time since their graduation.

The one thousand nurses in State A are a homogeneous group in that all have had extensive practice in hospitals in ether bed making during their recent three years of training. The one thousand nurses on the registry in State B are a non-homogeneous group as far as their opportunities for practicing and maintaining skill in bed making are concerned. The selection of samples in this situation is made under dissimilar conditions.

—Blanche Pfefferkorn

PERSONNEL

In an attempt to make a survey of the social contacts of women who were college graduates, questionnaires were sent to women in graduate courses in the colleges and universities of this country. This sampling included almost entirely professional women and excluded the college graduates who are homemakers.

—Lulu Holmes

PSYCHOLOGY

In some galvanometric measurements of young children criteria for selection have not been adequately worked out in advance. Hence the first cases are chosen less carefully than the last cases and with different emphasis. If the first few children tend to be highly nervous a criterion of poise is introduced in the selection of the next cases. This should throw out the first cases on which the same criterion was not used. A skirmish study should be made first in order to establish definite criteria for choice of samples so that all such variations in later samples could be avoided.

—Alice V. Keliher

Volunteers may be called for in an experiment in learning in a certain field. Since only those most interested will volunteer, a random sampling is not

obtained. This violates Criterion (1). If a second call is made and a reward is offered this time, Criterion (2) is violated.

When several friends respond because one of them volunteers, Criterion (3) is violated.

—M. P. Ekas

RELIGIOUS EDUCATION

The research project which I wish to use to illustrate possible violations of the criteria of random sampling is one in which I am personally interested. The problem is the study of Sunday School attendance among the Sunday Schools of the Eastern Synod of the Reformed Church in the U. S. over the period 1920–1928. The proposed procedure, briefly stated, involves first of all securing attendance figures for these Sunday Schools for the nine years of the above-mentioned period and, on the basis of this data, distinguishing perhaps four trends in Sunday School attendance; namely, growth, loss, constancy, and minor fluctuations. The next proposed step is to select a limited number of schools best representing each of these four trends. The third step is to secure more extended data for these selected schools from two sources—the official records of the denomination, and questionnaires addressed to the present pastors of these schools. The fourth step proposed is that of tabulating the data thus secured and seeking for significant relationships which may possibly lend themselves to a causal interpretation.

Inasmuch as the official records do not contain all the items of information desired, recourse will have to be had to questionnaires, and the questionnaires returned will determine the schools to be considered in the study. It is likely that the questionnaires will be returned by several classes of ministers—those who are my personal friends, those who have a sense of duty toward communications of such a sort, those who feel that they have something particularly significant to report, and those most interested in Sunday School work. It is doubtful whether the operation of the selective factor in the first two cases would violate Criterion (1), because these two classes would in all probability include some ministers with large Sunday Schools and also some with small Sunday Schools, and so on. But the operation of the selective factor in the third and fourth cases would apparently violate Criterion (1). It would seem that the returns would be overweighted with Sunday Schools, for example, whose ministers take an active interest in them, and that very factor is one of the characteristics which I wish to correlate with loss or growth of Sunday School attendance.

The Eastern Synod, as at present constituted, contains an Eastern Hungarian Classis, made up of immigrant Hungarian Protestants. If I am not mistaken, this Classis was not in existence in 1920. The terms of this study prevent any

error at this point, for they make it inevitable that the 1920 data and the 1928 data shall be gathered for the same Sunday Schools. But if the study should, by any chance, expand to include a comparison between a certain type of Sunday School in 1920 and the same type in 1928 and samplings should be made for this purpose, Criterion (2) would be violated in that the conditions would not be identical.

It might happen that the number of questionnaires returned would be insufficient for the purposes of the study and that a letter would be sent out to the ministers who had already responded, asking them to urge fellow-ministers who live nearby or who are their particular friends to respond also. Such a procedure would run the risk of piling up the bias present in the first returns, and thus of violating Criterion (3) of a random sample.

—N. C. Harner

Criterion (3) is violated if I attempt to discover the attitudes of college students on religious and social problems by giving a test to the members of a particular class in sociology or religious education. Such a group might be influenced to a greater or lesser degree by the attitudes and opinions of the instructor and so would not be typical of college students in general. Criterion (3) would again be violated if I should ask those taking the test to suggest friends who would be willing to take the test also.

—Grace R. Foster

TEACHING METHODS

The biology teacher was illustrating Mendel's law of inheritance of dominant and recessive characteristics. He explained that it depended upon chance. By way of illustration he filled a bowl with fifty black beans and fifty white beans, shook it thoroughly, and had a blindfolded student take the beans out in pairs. The pairs were placed in three groups according to the way they happened to be drawn—both white, both black, or mixed. According to the laws of chance, twenty-five per cent should have been in the white group, twenty-five per cent in the black group, and fifty per cent in the mixed group. However, when all the beans had been taken out in pairs by the blindfolded student, it was found that forty per cent were in the black group, about forty per cent in the white group, and only twenty per cent in the mixed group. An observant student called attention to the fact that the white beans, which were about twice the size of the black beans, had come to the top when the bowl was shaken. This resulted in the first pairs being white, the last pairs being black, and the number of mixed pairs being quite small.

—E. G. Wilkins

In a comparison of the Demonstration and Individual Laboratory Methods (so-called) of teaching science, all of the criteria of random sampling have been violated. Of all the secondary school pupils in the United States, less than a dozen groups—only two of which exceeded 20 pupils—were studied, and these were located almost entirely in one section of the country, thus violating Criterion (1). These groups were in different science courses, some of which were required, others elective—thus violating Criterion (2). Practically all of the studies were made by teachers who were (or had been) students in a certain university department of education, thus probably violating Criterion (3).

—*Mervin E. Oakes*

THE SCOPE OF DESIRABLE FLEXIBILITIES IN JUNIOR HIGH SCHOOL CURRICULA

By DAVID SNEDDEN
Professor of Education, Teachers College

WELL-INFORMED educators will readily admit that of the twelve grades making up the standard public school system the area consisting of the seventh, eighth, and ninth grades is now most formative as regards purposes or objectives. This appears to be even more the case when we include as proper junior high school personnel all children over twelve years of age, irrespective of whether they are in the second grade or in the eighth.

Time was not many years ago when very few really poor pupils either reached the seventh grade or remained in school beyond their twelfth year. Now that situation is nearly completely changed. Our schools must provide best practicable learning accommodations for *all* the children of *all* the people up to at least fifteen years of age—and that will presently be seventeen or eighteen.

But other conditions are changing, too. No competent educator now believes that there is a magical "mental training" which can be produced by *methods* of teaching in *mental arithmetic, shop work, grammar* or some other easily formalized subject. Few educators still believe that optimum objectives for the junior high or any other school can be neatly compacted into some quasi-magical word or phrase, such as "orientation," "self-realization," "character formation," or any other of the scores of catchwords which aspirationists find it so easy to peddle in teachers' meetings.

The two conditions which, however, more than all others have forced upon educators acute problems of junior high school curriculum reconstruction are these: (*a*) we know that the personnel of this school is highly variable both as to its immediate potentialities, and as to its future needs; and (*b*) the educational "good things" which it is now possible to produce at junior high school levels have

greatly increased and could readily be even much further increased if desired.

For the present it must be admitted that we have no useful objective criteria of educational values as expressed in such composites as curricula. Hence those who would contribute to progress must use to the utmost analytical methods enabling us to clarify subjective valuations. It is to be hoped that techniques of using such methods can soon be greatly improved. One phase of such a method consists in highly critical "jury valuations" of postulates and hypotheses, each dealing with a relatively indivisible issue.

In the following paragraphs are submitted for discussion a series of concrete issues designed in a measure to illustrate that method.

I. THE SETTING

Let us think of a junior high school containing from 1200 to 1500 pupils, including all those in the district of seventh, eighth, or ninth grade standing, as well as perhaps 100 who are over twelve years of age but of less than seventh grade attainments—a few of them laggards who have hardly passed the third grade.

Assume that the school is amply housed and equipped and that competent teachers can be provided for any offering which well-considered policy seems to justify. The offerings of the school—studies, exercises, activities, certificates, grades, guidance—can be practically as varied as on the one hand the expertly studied "needs of the learners" seem to justify or the needs of their present and future local communities or societies—from family and neighborhood, to state and economic organization—may seem to require. In considering desirable objectives, courses, and curricula, as suggested below, let us temporarily disregard difficulties of meeting administrative conditions.

The policy-makers of the school—Board of Education, superintendent and supervisors, school principal, curriculum and course committees of the school, and authorized school advisers of the pupils—have responsibility and power, it is assumed: to prescribe studies or other activities for any or all distinguishable types of pupils; to refuse permission to some or all classes of pupils to take studies or other offerings of the school; and to permit pupils to elect offerings with authoritative approval where such election does not demonstrably

militate against the interests of the pupil himself or of the societies whom his membership affects.

Let it be even further assumed that these policy-determining authorities are disposed, like kindly and well-socialized physicians, employers, police officials, and superior artists to yield to parental, neighborhood, and even learners' preferences, temporarily felt wants, and so-called "interests," so long as such yielding does not operate injuriously to the larger social purposes clearly to be served.

It will, of course, be taken for granted that these expert authorities are fully aware that warmly coöperative attitudes on the part of learners contribute much to rate and effectiveness of learning, and that maladaptations of learning spirit, however produced, may easily lead to acquisition of hurtful concomitant learnings.

II. PRINCIPLES GOVERNING OFFERINGS

In such a school as that indicated what variety of educational offerings might profitably be made and what ranges of flexibility should prevail in adapting them to the social potentialities and to the family and personal preferences of learners?

Will these basic principles be accepted:

a) That nothing will be offered in the school as course, exercise, game, credit, control, or guidance unless there is a strong presumption that the results of such offering as found in at least some learners will be profitable to the learners in a personal sense and to their future coöperators, including the state, in a social sense?

b) That no offering, except a few conformities to the good order of the school, will be required of a learner or even advised to him, for which he has not attained, through hereditary powers, physical growth, and experience, a considerable "optimum readiness"?

c) That some offerings—and especially the developmental sports, the attractive readings, many nature explorations, wide ranges of shop, garden, commercial, and household manipulative projects, dances, and the like—will be provided primarily to serve proximate needs, to provide very present values, in superior pleasures, full growth of faculties, etc.

d) That some offerings—and especially masteries of definite performance powers and superior appreciations (as tastes, valuations, attitudes, ideals), such as those involved in acquiring performance

powers in English language, a foreign language, mathematics, scientific techniques, superior literary and graphic arts appreciations, superior experiences in reflective thinking and masteries of salient knowledges of history, geography, civism-forming social sciences, etc. —will be provided and administered as essentially "projective" studies—that is, as yielding primarily deferred values, and as requiring at present the spirit of "hard work" and "self-discipline" for their attainment.

e) That a few "studies"—or exercises or samplings or even tests—will be offered for consciously "exploratory" purposes, but these will fill minor rôles among course offerings. (Psychological tests will be expected chiefly to serve for the discovery of exceptionally superior or inferior qualities of mind—that is, exceptional degrees, positive or negative, of aptitudes; and the learner's natural contacts with his environments will usually reveal exceptional acquisitions of "culture" or social interests.)

III. MAJOR FUNCTIONS TO BE PREPARED FOR

The major categories of educative functions to be served by public schools can conveniently be assembled under such heads as: (1) Performance masteries (including factual knowledge learned to the point of ready and fairly inerrant application) essential to the "common culture" of our civilization; (2) cultural appreciations of the ranges of literatures, natural sciences, social sciences, arts, etc., essential to the "common culture" of our civilization; (3) prevocational masteries, essential to later vocations; (4) performance and appreciational masteries essential to health conservation; (5) performance masteries and appreciations (*a*) of beta character for present juvenile civic participations, and (*b*) of alpha character as preparatory to adult civic participations.

With regard to the foregoing will these sample principles be accepted as applicable to junior high schools:

1. That as respects "common culture" performance masteries, including English speech and writing, geography and history essential to intelligent reading, consumers' mathematics, foreign languages, etc.:

a) Superior oral reading powers should be looked upon, like cor-

net playing or foreign language reading, as a desirable accomplishment for the much interested only.

b) Foreign language study should be permitted only to learners of quite superior (highest fifth?) intelligence powers.

c) Pupils of low half of intelligence distribution should be assured "use masteries" of factual knowledges in geography and history much more thorough than at present, but covering only perhaps one-fifth as much ground as at present.

d) For pupils of low half in intelligence, junior high school mathematics should consist primarily of review, in new and very concrete applications, of arithmetical principles learned in first six grades.

e) For pupils of superior musical talent opportunities for good training in amateur performance powers in some field of music should be expected.

2. As respects "common culture" appreciational masteries (and especially in literatures, histories, geographies, musical and plastic arts, social sciences, current events, nature science, practical arts, travel, camera "hunting," picture study, photo-drama, etc.):

a) Very large quantities of attractive reading should be made available, largely for out-of-school use, but no requirements of same materials for all should be imposed, on assumption that, prevailingly, tastes and profitable assimilations will differ greatly as between: girls and boys; learners of low intelligence and of high intelligence; romantics and conformists; and others.

b) Very large quantities of manipulative practical arts—industrial, household, typewriting, gardening, nautical—should be provided, but with no common requirements of kind or amount (all elective) and no serious expectations of prevocational training or vocation-finding results.

c) Very wide ranges of reading, pictorial and other appreciational materials in histories, geographies, natural sciences, and social sciences should be provided, but with no uniform requirements for all, with much election, and with wide internal flexibility.

d) Far more attention should be given to cultural appreciations of, and elevation of interests in, current events (including current literatures) than is anywhere the case at present.

e) Since photo-drama on a commercial basis has become one of the largest means of assimilation of current and common culture

(probably surpassing for youths of 12 to 15 years newspapers and magazines for that function) schools, while not offering photo-drama, will keep constantly in touch with current commercial offerings for the purpose of trying to elevate utilizers' tastes and assimilations.

3. As respects prevocational masteries:

a) No direct training for any vocation can profitably be given or should be attempted during junior high school ages 12 to 15.

b) Very few truly prevocational (preparatory) studies can be offered in these years to persons for whom they will probably prove functional. The exceptions will probably prove to be: (1) beginnings of pre-engineering mathematics for boys of very superior intelligence; (2) typewriting (but not stenography) for girls; (3) pre-stenographic spelling and punctuation for girls; (4) pre-home economics mathematics (very doubtful); (5) pre-artisan drawing and blue-print reading (doubtful).

c) Though great varieties of industrial, gardening, and other arts, especially for boys, should be provided, it must be expected that, except for two to three per cent of learners, these will not function prevocationally at all.

4. As respects health conservation and body building functions:

a) By the time pupils have had reasonable first six grade instruction, habituations, and idealizations in personal hygiene (and it being assumed that essential matters of public sanitation will be given in civism-producing studies) very little hygiene knowledge or practice will remain as a uniform requirement for all pupils in junior high school grades.

b) But: frequent examinations of bodily well-being, hygienic practice, hygienic ideals and hygienic knowledge (including here all that pertains to giving the body optimum opportunities for full natural growth) will disclose "shortages" in individuals, towards removing which carefully made programs, sometimes of "hard" learning and training, sometimes of "easy" instruction and idealization, must be made and followed. Here we are in a domain, not of "elections" or of universal requirements, but of individual prescriptions.

5. As respects civism-producing studies, participations, etc.:

a) Civic participations are of two fundamental, and largely un-

like, kinds: (1) the "conformist," law-abiding kinds; and (2) the coöperative-production, public opinion making, reforming, kinds.

b) Junior high school pupils can be trained much in conformist civic virtues through utilization of their present sharing in community life.

c) But these pupils have few real opportunities to share in the coöperative-production sides of civic life—these being, like vocations, the prerogatives of adults—voting, reforming, opinion making, etc.

d) Hence in this sphere effective studies must be largely "projective"—that is, the building of ideals chiefly for deferred functioning, elucidation of economic and political problems long in advance of direct applications of such knowledge to coöperative policy-making, acquisition of insights into techniques of desirable and reprehensible political manipulations, etc.

IV. SOME FINDINGS SUGGESTED AS BRIEF HYPOTHESES

1. There are *no* studies which should be required to the same degree of attainment of *all* junior high school pupils.

2. The junior high school is no place for vocational studies—and only rarely for prevocational studies as vocational preparation.

3. Most of the appreciational studies of junior high schools—literatures, geographies, histories, natural sciences, social sciences, sports, practical arts, fine arts, photo-drama, current events—should offer great flexibilities within their contents so as to provide adaptations, often to be elected by learners themselves, to differences of acquired apperceptive liking or disposition or experience, differences of sex, differences of environmental suggestion, etc.

4. The performance mastery studies required of or urged on junior high school pupils because of deferred values clearly known to policy-makers and advisers—English grammar for the bright, drill in letter writing for the dull, a foreign language for some, practical arithmetic for the probable manual workers, abstract mathematics for prospective engineers, economics for possible political leaders, corrective gymnastics for the mal-formed, etc.—should be programmed in much detail, their possibilities clearly demonstrated and evaluated to learners, and their pursuit carefully adjusted to day and year periods of maximum learning powers of "hard-work" kinds.

5. Every pupil should be conscious of such divisions in his daily and yearly program of studies as will allocate to appropriate periods: (*a*) "developmental," "appreciational" and other presumably (for him) "easy" studies and other learning pursuits; and (*b*) "deferred value" studies of presumably (for him) "hard" character.

THE CORRELATION OF DESIGN AND HANDICRAFT[1]

By GEORGE J. COX

Professor of Fine Arts, Teachers College

FACED with the immediate necessity of saying something about the correlation of Design and Handicraft, the speaker was forced to admit an almost complete ignorance upon the theoretical side of the problem.

It had always seemed that such correlation was automatic, and entirely satisfactory, whenever materials were rightly used. Every old craftsman who respected his business has left behind conclusive proof of this. Our museums supply innumerable visual lessons in faultless correlation in all the varied mediums of the arts and crafts—which have the advantage of this meeting in that they speak in an international tongue.

To refer to such obvious lessons seemed too palpable an excuse for ignorance, and in an attempt to supply the deficiency many papers and reports from various Art conventions were consulted, without significant results. The writers covered the ground more than adequately, yet with few exceptions what they said seemed to be merely "true but unimportant." There can, of course, be no universal solution other than that of the old workers in the art crafts, for correlation varies in every locality. Social, economic, and even ethnological factors modify its technique. At any rate, its application is conditioned by the demands of the art industries peculiar to the place and time.

I

In a last-minute effort to obtain light on the subject an old edition of the *Encyclopedia Britannica* was consulted, the index of which read: Art, Art Squares, Art Teachers, Art Thou Weary. The last condition is likely to become chronic after an inspection of the results of correlation in art and handicraft during the last half century.

[1] This article gives the substance of an address delivered by Professor Cox, August 3 1928, at the International Art Congress held in Prague.

Theoretically, correlation has been worked out with much skill. Practically, it has suffered from two major defects. The first seems to be a mistaken emphasis on museum study; the second, a reluctance to admit that conditions favoring the arts and handicrafts have radically changed since the days of William Morris. As to the first weakness, no sensible teacher belittles museum study. We are forced to admit that the old craftsmen have exhausted the possibilities of certain methods and materials. It is difficult to believe, to mention only one craft, that the potters of China, Japan, or Persia overlooked any shape of beauty, or the European potters any of utility. The best of modern craftsmen, using their materials and methods, are continually faced with the fact that the last word in legitimate manipulation was said many years ago by old artificers who were steeped to the hearts in a splendid tradition of craftsmanship. We must go to museums, if only to avoid wasting time re-inventing ancient formulas and repeating old patterns; and to learn the eternal lesson that beauty dies when craftsmen grow too clever.

The case for museum study is so strong that it is sometimes overwhelming. The things we see in museums exert a subtle influence, and the sentimental projections of those bygone arts and crafts have a power to mould, and even to distort, our thoughts. The most forward-looking student, as he stands before some matchless product of the past, feels the creative fibres sag. Insensibly study is submerged in worship. Healthy iconoclasm gives way to pious conservation, and however admirable such conformity may be for directors and curators, it is not altogether desirable for art students. Promising heretics subside into patient worshipers, gifted youngsters grow up to spend their energies embalming arts that are exquisite but dead, and end as timid resurrectionists when they should be rolling up their sleeves to assist at a new birth.

This may smack of overstatement, but we are forced to admit that there is something wrong with museum study when we note its effects upon the design of everyday things into which art and handicraft enter. We see old forms tiresomely reiterated, our senses are dulled by countless reproductions, adaptations, and hybridizations that have the stamp of museum work, but lack its spirit. A Gothic credence is made over into a radio cabinet; an Italian *prie-dieu* serves as a model for an umbrella stand; a medieval *torchere* is fitted with electric

light. We see such anachronisms on a huge scale; one of the odd dozen world's fastest trains, going sixty-five miles per hour on a fifty-eight inch wheel base, whirls along a Jacobean dining car and an Adam drawing-room. The latest giant in motor driven liners has a salon that is an obvious understudy of the Vatican loggias; by the same process of correlation we may expect the airships of the future to show interiors resembling Roman baths. It must be admitted that this sort of æsthetic Burbankery is less prevalent than it was, but it still bulks large in the art industries.

II

The second defect, very closely bound up with the first, is the inability to visualize, or reluctance to conform to, the radically changed conditions of the twentieth century; economic, physical, material, social, and spiritual. To-day the correlation required is not the simple, almost automatic, coördination displayed by the old handicrafters. To pursue that subject is to flog a dead horse. It is the more difficult correlation between designer, artizan, machine, and manufacturer, not to mention buyer, salesperson, and consumer. To-day a few surviving handicraftsmen go on producing an admirable class of work, very restricted in output. Meanwhile the world is filled to repletion with a mass of objects in which the essential correlation is missing. The speed of the economic revolution excuses much of this tardy readjustment, and we are aware of the increasing momentum of the modern movement in art and industry. Yet one may still see a plethora of Colonial andirons, Queen Anne tea caddies, Tavern chairs, Dutch hinges, Chippendale tables, Louis Quinze wall papers, etc., so that some store price lists read like museum catalogues.

Of course not all countries sin in this manner. They manage these things better in France, and in Scandinavia and Central Europe. But with a few exceptions, and barring Continental importations and influences, the only artistic activities that show a healthy development in America and Great Britain are poster work, automobile design, and plumbing—all crafts that have no hampering traditions to check their progress.

Although, in America particularly, we see a stupendous activity on the part of science, resulting in ever-widening ranges of new materials, colors and textures, there seems little disposition on the part

of craftsmen and designers to experiment with like energy in their utilization; or, on the part of the consumer, to demand such activity. The result is that we still await the advent of art in everyday life; the only place where it really matters. We are surrounded by a rich confusion of necessary, or rather unavoidable, things that exert a subtle power through their ceaseless repetition, and these things remain devoid of beauty or even comeliness. Who has yet seen a decent looking newspaper, or a presentable Sunday supplement or magazine? A rag bag usually has more organic unity.

Then, think of the power for art propaganda latent in the ubiquitous cigarette packet. Yet, nowhere in the history of graphic arts can be found a more despicable chapter of lost opportunities. One may range America and Europe, and only in Germany can one find an intelligent realization of the possibilities this field offers. The same criticism applies to the innumerable cartons, wrappers, boxes, and tins that glut our stores. But it is not necessary to enlarge on a painful subject; it is obvious that correlation is weak here.

III

The only constructive suggestion I can offer is that to every museum we should add a temporary annex. In this should be housed specimens of everyday things; things made and used by the billion, from pill and match boxes, bath taps and bell pushes, up to telephone booths, traffic signals, gasoline pumps, and automats.

It is not suggested that we should cultivate a preference for those things and neglect old manuscripts, Gothic statues, ancient coffers, and Chinese porcelain. But we are forced to look at them all our lives and it is high time they were made in more comely forms.

Having installed our annex and filled it for the price of one dubious Old Master, our correlation may begin. Each art student should be tempered by being exposed to old and new alternately. Directly a pupil showed signs of becoming softened by contact with the antique, he should be plunged into the annex until a certain firmness is reestablished. When a fair degree of flexibility is attained, museum study should alternate with work in a factory, dreaming with doing, pleasure with pain. Under such a system the design of our utilities would soon grow in beauty, and the genuine handicrafts be freed to expand in their rightful fields.

If we begin with the little things the ferment will be felt working in all directions. Every cigarette packet might have an æsthetic kick, on the outside—whatever its contents. Every carton and wrapper might be bright and beautiful instead of beastly. Every bottle of ink or beer or bicarbonate could possess a shapely form and a lovely label. From such ephemera we might progress to street signs, lighting fixtures, telephone booths and filling stations—to everything, in short, that clutters up our unlovely civilization, and which must be standardized and produced in mass.

All these things cry out for a correlation not of art and handicraft, but of art and machine craft. They ask to be fabricated out of the rustless steel, aluminum, composite stones and woods and marbles, new veneers and surfacings, brilliant enamels, luminous paints, artificial silks and leathers, synthetic ambers, ivories, jades, and precious stones; out of all the fascinating products of modern chemistry—products quite unknown to the antique craftsman—that are now awaiting the creative wand of the modern designer.

BASES FOR STANDARDIZING AND ACCREDITING COLLEGES

By F. B. O'REAR

Assistant Professor of Education, Teachers College

IT IS customary to speak of the standard college as though the connotation of that term were accurately known and its complete implication adequately recognized. Standard colleges—standard with respect to what factors and to what degree of detail? The accompanying list, which is by no means exhaustive, lists in the left-hand column under four general divisions some of the more obvious and more widely inclusive factors concerning which standards might be devised. Certain standards have been formulated concerning some aspects of a number of these factors. This fact is indicated in the right-hand column. No attempt has been made to report the extent to which existing standards cover the details of these factors with thoroughness.

It will be noted that standards which relate to product do not now exist. It is obvious that standards may be set with respect to a very wide range of widely diverse factors in the total college situation. It is also evident that the degree of minutia of such an analysis of factors and accompanying standards might be greatly if not almost indefinitely increased. As a matter of fact the extent to which standards have been promulgated represents only a point of departure within the total range of possibility. These statements are noted without implication that the list or the standards should be expanded either in range or degree of detail. In fact it is being rather widely recognized, and with reason, that observance of existing standards is not always demonstrably related to the attainment of stated objectives. Existing standards deal largely with relatively external and peripheral factors of *matériel,* personnel, or procedure. Data experimentally obtained frequently do not justify existing assumptions of concomitance between adherence to these existing standards and the achievement of a given quality of product. It is therefore proposed to set standards which relate to the product of the college for use in lieu of or in con-

junction with standards which relate to factors of *matériel,* personnel, and procedure. This is indeed a far-reaching and important step. It is one matter, for example, to set a standard ratio which should exist between size of staff and size of student body; it is another matter to set standards by which to measure the relationship of the maintenance of any such fixed ratio to quality of output; it is yet another matter to set standards by which to test the achievement by an institution of a type of product deliberately chosen by that institution as a self-directing body; and it is a still different matter to set standards by which to measure the existence or non-existence in the product of an institution of qualities formulated and defined as desirable by any other agency or group without regard to desirable variation in the objectives of the institution scrutinized. In short, standards for the product of an institution inevitably involve the purpose and objective of that institution and the question of the agency by which such purpose and objective are ultimately to be fixed. Thus is raised a most vital question of far-reaching effect. Is standardization, in the real sense of that term, desirable, and if so, with respect to what factors? Unanimity of opinion is certainly not existent, to say nothing of conclusive objective evidence, to indicate what product should be sought by all colleges on a standard basis. Divergence in objectives and in product may well extend to individual institutions and indeed may properly exist in a single given institution with respect to different student groups.

Without entering into extended discussion of the matter, it may be pointed out that there are substantial bases for the contention that, so far as product is concerned, assistance for colleges is needed (*a*) in the formulation of objectives, and (*b*) in the accurate measurement of the extent of realization of defined institutional objectives, rather than standardization of product for all institutions in any exact sense of the term. Accurate differentiation between institutions in the light of institutional purposes seems necessary. Measurement of the quality of a differentiated product is desirable rather than standardization of product. Differentiating and measuring agencies may be more useful than standardizing agencies. Diverse and discriminatory measures may be needed instead of standardizing and unifying requirements. Such measures must needs be set in the light of institutional objectives formulated in far more exact and precise terms than is

SOME FACTORS TO BE CONSIDERED IN STANDARDIZING COLLEGES

Key: N. C.—North Central Association of Colleges and Secondary Schools. M. S.—Association of Colleges and Secondary Schools of the Middle States and Maryland. S. A.—Association of Colleges and Secondary Schools of the Southern States.

Factors Concerning Which Standards Might be Formulated	Agencies Which Have Formulated Certain Standards Concerning Some Phases of These Factors		
I. *Matériel*			
1. Endowment	N.C.	M.S.	S.A.
2. Physical Plant			
A. Land			
B. Buildings			
C. Equipment	N.C.	M.S.	S.A.
D. Library	N.C.	M.S.	S.A.
3. Current Income	N.C.	M.S.	S.A.
II. *Personnel*			
1. Staff			
A. Size of Staff	N.C.	M.S.	S.A.
B. Training	N.C.	M.S.	S.A.
C. Experience			
D. Intellectual Ability			
E. Productivity			
F. Personality			
2. Student Body			
A. Size and Distribution	N.C.		S.A.
III. *Procedure*			
1. Administrative			
A. Contracts			
B. Salaries			S.A.
C. Leave and Retirement Provisions			
D. Teaching Load	N.C.	M.S.	S.A.
E. Student Recruiting			
F. Faculty Organization			
G. Publicity			S.A.
H. Honorary Degrees	N.C.	M.S.	
I. Discipline			

SOME FACTORS TO BE CONSIDERED IN STANDARDIZING COLLEGES (*Continued*)

Factors Concerning Which Standards Might be Formulated	Agencies Which Have Formulated Certain Standards Concerning Some Phases of These Factors		
J. Student Advisement			
K. Health Service			
L. Housing and Feeding			
M. Extra-Curricular Activities	N.C.		S.A.
N. Admissions	N.C.	M.S.	S.A.
O. Records			
P. Registration			
Q. Accounting			
R. Collections and Disbursements			
S. Purchasing			
T. Plant Operation and Maintenance		M.S.	S.A.
2. Instructional			
A. Staff Organization			
B. Curricula	N.C.	M.S.	S.A.
C. Courses			
D. Elections and Requirements	N.C.	M.S.	S.A.
E. Degrees	N.C.	M.S.	S.A.
F. Student Orientation			
G. Auxiliary Instructional Facilities			
H. Class Size	N.C.	M.S.	S.A.
I. Subcollegiate Work	N.C.	M.S.	S.A.
J. Professional and Technical Work	N.C.		S.A.
IV. *Product*			
1. Number			
2. Content of Training			
3. Intellectual Ability			
4. Attitudes			
5. Interests			
6. Vocational Objectives			
7. Information or Knowledge			
8. Personality			

usually done. Since all measurement implies the use of a measuring instrument, standards will be necessary. However, to set individual standards for judging the effectiveness of an institution in achieving its own objectives is a matter different from and much more difficult than setting arbitrary uniform standards for colleges as a group, as has been largely done in the formulation of existing requirements.

It is one thing to set a standard which shall be definitive of the kind of product which colleges should produce. This function indeed appears to fall wholly within the province of the institution itself, rather than within that of any other agency. It is altogether another matter to devise accurate measuring instruments or standards by which the attainment of a product of specified type and qualifications may be recognized or perhaps classified according to degree. The latter procedure appears defensible, as a function both of the college itself and of other agencies as well.

Of the existing standards which relate to more mechanical and incidental factors, those which look toward insuring permanence, stability, and continuity seem worthy of retention. Standards such as those relating to endowment and to the source and amount of available income seem justifiable on this basis. Until such time as experimental evidence is available to establish the actual relationships between others of this group and the achievement of the type of product sought by an institution, it is proper that they be critically reviewed.

Accreditation has always been the means of forcing conformity upon those institutions which by reason of inability or choice have differed from the mass with respect to those factors upon which standards have been formulated. If attempted with respect to and upon the basis of product, accreditation appears defensible only if based upon the checking of an institution against itself and its own clearly defined purposes rather than against other institutions or against any set of standards presumably universally applicable to all colleges. If attempted with respect to and upon the basis of other more incidental factors, accreditation is justifiable only in the degree to which the standards used are demonstrably related in a positive way to the production of the type of product to which the individual institution is committed.

That operation upon such a basis is a task exceedingly difficult of fulfillment is not to be doubted. However, if thinking and practice are to be revised, as they should be, these questions concerning the desirability, extent, and type of standardization for colleges cannot properly be ignored. They seem to be worthy of far greater attention than has hitherto been accorded them. Standardization has been attempted in a very limited way with respect to factors of *matériel*, personnel, and procedure. It is proposed to shift the emphasis to standardization on the basis of product. May it not be that standardization in a real sense is desirable merely with respect to measurement rather than with respect to either product or procedure? It appears:

1. That in judging colleges emphasis should be shifted from machinery and operation to product;

2. That clear differentiation between institutions and accurate measurement of differentiated product may be needed instead of any real standardization of product, and that preparation of instruments of measurement may be more desirable than statements of standards; and

3. That accreditation may better be based upon the degree to which an institution produces its chosen results rather than upon its conformity or nonconformity to a series of standards or upon its likeness or dissimilarity to other colleges.

INDEX NUMBERS OF COSTS IN EDUCATION

Corrected Monthly to Agree with Current Prices

By HAROLD F. CLARK
Professor of Education, Teachers College

Date	I Index of the Cost of Living for Teachers	II Index of the Price of School Buildings	III Index of the Price of School Bonds	IV Index of the Price of Instructional Supplies
	(*1926 = 100*)	(*1926 = 100*)		(*1926 = 100*)
Month	Index	Index	Net Interest Rate	Index
1929—March	97.4*	95.67*	4.61*	94.3*
Feb.	97.1	95.63	4.52	94.2
Jan.	97.3	95.32	4.41	94.5
1928—Dec.	96.9	95.41	4.44	94.7
Nov.	97.3	93.32	4.45	94.9
Oct.	97.9	91.74	4.47	95.1
Sept.	99.7	92.26	4.55	95.0
Aug.	98.8	92.62	4.66	94.9
July	98.2	92.62	4.45	94.5
June	97.2	92.98	4.42	94.2
May	97.8	93.06	4.35	93.7
April	96.8	93.16	4.13	93.8

* Not final.

1. The first index is an index of the cost of living of teachers. It is based upon the prices of things consumed by teachers, weighted roughly according to the value of the things consumed. The price in 1926 is arbitrarily taken as 100. In February 1929 the cost of living of teachers was 97.1. The preliminary figures for March indicate a slightly higher figure at 97.4.

2. The second index is an index of the price of school buildings. If we take the cost of school buildings in 1926 as 100 the cost in February 1929 was 95.63; preliminary figure indicates a slightly higher figure for March 1929.

3. The third index is an index of the net interest rate on school bonds. The net interest rate stood at 4.52 in February 1929, and preliminary figures indicate a slightly higher rate in March 1929.

4. The fourth index is an index of instructional supplies. On the basis of 1926 as 100 the index is now about 94.3.

MATHEMATICS IN THE SCHOOL OF THE FUTURE

By EUGENE RANDOLPH SMITH

Headmaster of the Beaver Country Day School, Chestnut Hill, Massachusetts

The Conference on Mathematics, one of the group conferences held during the National Conference on Education which met at Teachers College, April 10 and 11, 1928, was devoted to a consideration of the topic, "Looking Forward to the Next Quarter Century; What Shall the Teaching of Mathematics Include?" Professor Clifford B. Upton presided. Addresses were given by Professor Cassius J. Keyser, Dr. Eugene R. Smith, and Mr. Joseph Jablonower. Professor Keyser's address was published in the February number of THE RECORD. The addresses of Dr. Smith and Mr. Jablonower appear in this issue.—EDITOR.

MATHEMATICS, like all other parts of the curriculum, must respond to the kind of school in which it is to be taught, while the school must respond to the type of community, and to the needs of the particular community.

It is always daring to attempt to prophesy concerning the future, but it is perhaps less dangerous when trends rather than details are emphasized. What are, then, the principal trends that characterize our community life to-day which are of such a nature that they are influencing, or promise to influence, the aims and methods of the schools?

I

It seems quite certain that production will be mechanized in an ever increasing degree. With that will come still greater specialization in production, a continued search for efficiency through large combinations, and a massing of community life about centers of manufacture and industry. The tendency of women to work outside the home seems well established, and adds considerably to the per capita production.

As it is already possible for a country like the United States to produce more than is consumed, we must either find new markets or new needs to be filled, or shorten the working day for a considerable part of the population. Otherwise unemployment will increase

in proportion to increased efficiency of production. One no longer sees either a fallacy or a danger in labor's receiving a continually increasing return in terms of produce, nor in an entire population's getting rich together. It is only a matter—though a still largely unsolved problem—of efficient production and distribution.

There are certain evident advantages in such developments, but there are disadvantages as well. In any case such continued tendencies must affect the schools very definitely. The self education that came in the past through a child's observation of the adult community, through his imitation of its activities, and eventually through gradually developing participation in those activities, is already largely gone. Unless present-day civilization is wiped out, it can never come back. The school then is faced with the necessity of replacing in some way and to some degree this natural education, which was effective because of its reality, its direct contact with the needs of life, and its interested, largely self-directed, activity.

Children can no longer sense the fabric of civilization from their own observations. It is too complex even for adults to grasp completely. One of the most important duties of the school then is to enable young people to formulate some adequate ideas of present-day life. Unless they do, future generations may blunder worse than past ones, though they have before them the most glorious opportunities for progress.

II

It seems inevitable also that there will be need of a generally higher level of education, and of large numbers of experts in special lines. As the machinery of life becomes increasingly complex, we shall need more people capable of keeping it running smoothly. Initiative, originality, the ability to reason clearly and quickly, resourcefulness, will be at a greater premium than ever before. There will probably be increased need for college trained men and women, perhaps more definitely trained than many of our graduates are today. I am sure, however, that there will be tremendous need for young men and women who have had only a high school education—or that plus one or two years of specialization—instead of the longer course of study. There will just as certainly be a place for many whose tastes and abilities are not academic even to that degree, but who are

capable of understanding and carrying on important parts of the world's activities.

If it proves true that leisure time is increased, there will be insistent need of preparation for wise use of it. Leisure rightly used enriches life, but unused or badly used it is a disadvantage to the individual and the community.

There is now, and will continue to be, a demand that young people be guided more helpfully in finding the ways in which they can make the most of their possibilities. This means that the schools must develop better ways to study their types of mind, their responses to fields of subject matter, and—particularly important—their attitudes, habits, and emotions. Much has already been done in this respect, but it is only a beginning. One deterrent has been the entrenched positions of some departments or of individual teachers, who meet any changes in school procedure with suspicion, if not with active opposition.

It is time for us to replace guesswork with experimental proof where that is now feasible, and with carefully and logically developed analysis where our methods of objective proof are still too undeveloped to make their use possible.

Perhaps most important of all the duties facing the schools is that of turning the minds of the pupils from competition to coöperation, from personal selfishness to an ideal of service to the group, from too localized a point of view to an attitude of world-mindedness. Man is already strongly competitive, but he is only at the threshold of the possibilities of coöperation. He is trying to be open-minded, but is still bound by the fetters of superstition, suspicion, and fear. When he dares face the future without prejudice or preconceived beliefs, he will begin to come into his inheritance.

Certain definite variations are already coming about in schools, largely as a result of the changes and demands I have mentioned, although to some degree also due to a changing theory of education.

One is that of much greater freedom for individual activity and for consequent individual variation. The school is increasingly a workshop and laboratory. This, of course, means greater informality, less mass education, more study of the individual and appreciation of the contributions of the various children. It also means such organization of subject matter that the pupils can take interest in their

work and will be stimulated to prolonged and enjoyable self-activity. Through such experiences they can be expected to realize the pleasure of accomplishment and to grow into the ability to concentrate their powers and to persevere in their tasks.

Another variation is a tendency to remove artificial divisions between the school and life outside of school. It is realized that every phase of life is material for the avid mind of the child, and that the world itself, with its natural state, its man-made conditions, and its accumulations from the past of the race, is all grist for the mill of the school.

What do these developments in schooling mean to the teaching of mathematics? About the changes in living conditions there can be little argument, and the tendencies in schools are too generally acknowledged to admit of much question. When it comes to the discussion of any part of the curriculum, however—especially of the details of its handling—there will be sharp differences of opinion. What I shall predict will be, of course, based on my own opinions; so if at times I may sound dogmatic, please understand that I leave to each his own belief, simply stating what seems to me not only logical, but almost inevitable.

III

First, mathematics will become more directly practical and, anomalous as it may seem, at the same time less immediately practical.

There are parts of the elementary mathematics, certain parts of arithmetic in particular, whose great justification for existence is the need for using them. With an increasing demand for the best use of school time, subjects that avowedly are studied for mastery as skills must justify the time given them on a basis of general use to a degree that pays for the time and effort required for their mastery. Consequently, those studying the curriculum in mathematics will examine each part for its certainty of use, and will also test each for the degree of mastery necessary for efficient use. Something has already been done in this respect, but absolute knowledge is still meagre. It seems possible that we may still be overimpressed with the importance of speed in the fundamental operations, especially at the time when they are first being mastered. To the extent to which speed correlates with the degree of mastery necessary for general use,

it is important. Beyond that, it is a waste for most people, a superskill that is quickly lost, and that can be gained by those needing it for special occupational purposes when the need actually arises. An exception should probably be made in relation to quickness of analytical recognition, as in recognition of the necessary next operation in a mathematical problem. The kind of thinking involved in this seems to have quite general value.

There seems little doubt that the principle that a skill is never really mastered except in application will be given increased recognition in all the teaching of mathematics. The multiplication table learned as a table does not insure the learner's knowing 7 x 9 when that product is needed. Neither does practice on long lists of algebraic manipulations—all more or less alike—insure recognition and correct use of the process when it occurs in combinations. Having mastered the series of proofs of the theorems of geometry does not give any certainty of success in applying the same types of logic, or even the facts studied, when they occur in new form. For example, it might be supposed that a child who could add whole numbers and could add ½ and ⅔ would certainly be able to add 2½ and 3⅔. Yet experiments with groups of children do not show that this follows.

This need of practice in applied form, as well as the importance of reality in school life, of interest in the task undertaken, and of freer scope for individual effort and achievement, emphasizes the advisability of letting the more elementary mathematics wherever possible come in response to a need for its use, and of having it mastered, to whatever degree proves feasible, in a setting that requires its application in varying ways. It seems likely that games and devices that capture the imagination of children will have increasing use, that the beginnings of arithmetic will not be hurried or forced on children who are not yet conscious of number in the forms which are being studied, and that all the real applications of mathematics that can arise in other subjects, or can sensibly be borrowed from life situations, will be made use of. This does not, however, mean that applications should be used even when their mathematical value proves to be too little to justify the time used in making them understandable!

It does seem probable that arithmetic may become more largely the numerical and quantitative side of a pupil's school life, coming

from the shop, the social subjects, the excursions taken by the class, the science interests developed by various pupils, etc., instead of remaining a subject confined to definite periods and segregated from its applications. This would not, however, preclude the use of drill by devices or otherwise to establish the mastery of operations found necessary.

The "General Mathematics" of the Junior High School seems to be on the right track, although it is likely to change somewhat in content as it is tested further by various criteria. It shows one real danger, nevertheless. It was planned as an "orientation" course that would open up to all pupils the possibilities of the several fields of elementary mathematics, thus not only laying a foundation for understanding them in their more complete forms, but also helping the pupil to try his powers in various kinds of mathematical thinking and perhaps even suggesting certain later specialization. Instead, many—if not most—teachers have simply accepted the new syllabus (though some still have never heard of it!) as a list of content material, and they are drilling on the various parts of it in as unrelated and uninspired a way as was ever true of the former course for these years. The possibilities are present in this course, but they must be worked out by intelligent teaching. Those parts of the Junior High School mathematics that are not of direct use must, with the secondary mathematics and even some parts of the elementary arithmetic, prove their worth in giving a background of understanding for one of the most important fields of human knowledge, in helping to interpret the common facts of life, in giving a mastery of thought processes not better obtained in other ways, and in influencing attitudes in a desirable manner.

In the process teachers will become less "textbook minded." They will think less in terms of topics and pages, and more in terms of how their pupils are being influenced by what is being done. A college student recently, while describing the teaching of a certain course, said "They assign lessons and hear us recite on them, and then we forget them." In that course the teachers are evidently thinking in terms of lesson assignments, and caring little for the results in effects on students. In contrast to this, class time in mathematics will be used for investigation and for real teaching, perhaps with increasing elimination of "out of school" preparation, at least through the

Junior High School, as it is replaced by constructive use of class time. The Junior High School mathematics organization incidentally, can, and should, become such that its mathematics can more readily and more constantly be related to the other experiences of the pupils, particularly those developing from social science.

IV

It seems likely that most pupils who are mentally competent for the work of the Junior High School can with profit to themselves continue mathematics through the eighth school year. But algebra and geometry are not necessarily the best subjects for all who continue their schooling past this point. It seems likely that there will arise differentiated courses fitted to differing needs and abilities. The development of prognostic tests, which at the present moment seems very promising, will make it possible to advise with some degree of accuracy as the best choice. Why should there not be a course in "Appreciation of Mathematics" that requires a minimum of mastery of processes, but opens the minds of the pupils to the relation of this subject to man's gradual approach to mastery of his environment, to the great enterprises under way to-day, to art and music, to nature herself, from her least manifestation to the laws governing the universe?

Certainly there is need in the later years of high school for a review and extension of the mathematics likely to be of common use. "Common use" should, of course, include understanding in a general way the enterprises and the news of the day, as well as one's personal part in everyday activities.

For many high school pupils, algebra is a necessary preparation for the professional mathematics that is to follow. For others, it opens interesting vistas of symbolic thinking that forever broaden their grasp of thought processes. The subject suffers, even for these groups, by the ease with which it can be organized and presented in logical sequence and perfected form. The algebra of the future will be less complete in its presentation to the pupil, will give greater scope for original thinking and will give less credit for repetition of a previously taught process. It is true that it is not possible to have all of algebra arise from needs appearing outside of the subject. Probably a small part only can arise from such needs that are felt

at the time it is studied. Most of such needs are, in fact, technical ones arising later, and affecting only a limited number of pupils. Would it not, however, be possible to have more of the manipulative problems of algebra appear first in settings that demand their accomplishment, and have them investigated because of this need, instead of mastered after a model presented by the textbook and reinforced by the teacher? In other words, why is not algebra a fertile field for original thinking, for learning to plan and develop an investigation, for obtaining a resourceful mastery of a powerful method of logic? That it is not such a field to-day, even those of us who are its best friends are forced to admit. When even some of the best among our texts ask pupils to solve by two unknowns—for practice, of course! —problems that the veriest tyro can see should be handled with but one, it is evident that manipulation, and not keenness of analysis and clear cut thinking is still the main goal.

It is possible that geometry suffers less than algebra by poor handling to-day because teachers have begun to realize that the great value of the subject lies not in its facts, which could be taught in a very short time, but in its less direct results. It presents an abundance of material for practice in logical analysis and organization that is unequaled for ease of use and ease of testing in respect to accuracy and directness of thought. It is true that this practice will not automatically carry over into other fields, but it can be made to carry over, and therein lies its great advantage. I am an extremist in my conviction that to give pupils a completely developed system of geometry with its perfected proofs and lack of opportunity for individuality or for genuine investigation is to offer only the dregs of the subject. No one who has not tried it knows the fascination of exploring with a class the various possibilities coming up at every stage of the subject, of discussing the various possible avenues of approach to an investigation, and of scattering on various paths that seem likely to reach the same goal and then comparing the results obtained and the suggestions for further explorations unearthed.

V

In all these subjects it is possible to influence attitudes as well as to develop useful habits. Scientific open-mindedness can be acquired in the mathematics classroom as surely as in the science laboratory;

and it needs only a wise teacher to make open-mindedness in general seem right and natural. It is not necessary, and there is not time, to name or discuss the various habits and attitudes that might be affected, but three stand out as so important that they should have mention. The first is the habit of organizing the data on hand when any problem is to be attacked, of finding out very definitely what end is desired, and of thinking out clearly and fully the possible ways of obtaining the desired result from the premises known. It is an universally valuable method of thought, and it is particularly a mathematical one. The second is the tendency to generalize. This tendency in its safest and best form is also a mathematical one. Its value to the world is evident in the innumerable discoveries that have come through it. The third is the attitude of happily and confidently undertaking problems of whatever sort, attained only through having been led by past experience to appreciate the joy of accomplishment. It should be noted however, that only by successfully accomplishing can this be reached, and interesting, stimulating and discriminating teaching is essential for that. I should like to add that pleasure in using one's mind seems to me one of the fundamental answers to the question of how constructively to use more leisure time.

Many other valuable results, one being an appreciation of absolute honesty in thinking, will come to the mind of any experienced teacher. The best analysis of these influences and aims of which I know is that made by Dr. William H. Metzler and published in *The Mathematics Teacher* a number of years ago. It should be read and carefully considered by all teachers of mathematics.

VI

Perhaps by now my statement that mathematics would become both more and less practical has become plain. Those parts whose main purpose is direct use must prove their usability, but the other parts must, while mastered ready for application, be taught with their effect on the attitudes and powers of the students always in mind. For themselves alone that will give the most complete mastery, and for their broader values it will add a contribution that can never be gotten through rote methods or manipulative skills, however perfect they may become.

I have not discussed the special courses in mathematics that are

planned for such specific purposes as business use, nor the more advanced courses such as solid geometry, trigonometry, and advanced algebra that are usually taught as direct preparation for engineering courses. I doubt the wide adoption, in our comparatively unselected groups, of still more advanced subjects. To all of these, much that I have already said applies with equal force. Every one of them should be taught with a view to the development of insight, and to the mastery of a method of thought that manifests itself through certain details of method and of skills. Content must be known, of course, but content alone is never enough.

VII

There are evident difficulties in the way of many changes I have suggested. The extreme departmentalization of the Junior and Senior High Schools, the short periods, the crowding of the curriculum so that it is difficult to adequately explore any one field, the school's subservience to college entrance examinations with all the fear and worry and consequent teaching for details instead of for power that is at present entailed, the difficulty of going outside the school for working material, the narrow education of many of the teachers; all these and other deterrents hold us back.

I am looking, however, for a rather thorough reorganization of the high school along with changes in its teaching methods. Already its extreme "grade" lines have broken down in the better schools. May we not hope for a change from the forty- to fifty-minute daily period to larger blocks of working time, spent in school or out, in observation, analysis, discovery? Is it not possible that if, as seems likely, we must have specialists for the various subjects, we shall insist that the specialists be trained more broadly, so that "correlation" may become more than a word, and teachers may actually realize that their subjects are means to an end, not ends in themselves?

VIII

What, if any, changes are necessary in teachers and the training of teachers to fit this future? The first need is for teachers who realize that the worst sin possible for a teacher of mathematics is that of making a pupil dislike the subject. Not all can love it, but all can come to see some of its wonderful possibilities, and can obtain a

certain ability to use it. Like other departments, we have made the serious mistake of expecting and demanding that all should reach as nearly as possible the same degree of proficiency, and we have used marks that were mathematically false, because of their absolute inaccuracy, to whip all pupils up to our standards. Let us teach the oncoming teachers to think in terms of human beings, to analyze systematically the needs and characteristics of each, to fit the tasks to the results of such analyses, and then to be satisfied with helpful diagnoses of ways for improvement rather than marks that are so nearly meaningless. I should like to see every prospective teacher given a certain number of pupils to help overcome their mathematical difficulties. The teacher should investigate each pupil's attitude toward the subject, and the reasons for antagonism if it exists, should test his knowledge of the necessary elements, and strengthen the weak places found, and should attempt when necessary to rebuild the mathematical structure on a basis of interest and confidence, to whatever degree of achievement proves to be a fair expectation.

The teachers should be well trained in mathematics; the more they have the better, if—and it is an important "if"—they do not go far enough to lose the point of view of the teacher in that of the specialist. The man or woman who is thrilled by the beauties of mathematical rigor, by the universality of mathematical laws, and by the enormous power man has gained through mathematical methods of thought, has an advantage in teaching the subject if he can acquire a dual personality, one part of his mind seeing the broad expanse of mathematics and knowing when to make a contribution from it, while with the other he forgets his knowledge and becomes a fellow worker with his pupils for much of the teaching time. Such a teacher can learn to anticipate the difficulties met by various minds, even though no such difficulties hinder his own thinking, and can, by preventive rather than corrective means, gradually eliminate much of the unnecessary and discouraging type of obstruction.

Is it possible to train teachers into this condition of mind? I believe that it is. A short time ago a teacher of mathematics in a teacher's college told me that there was not enough material on the teaching of geometry to fill a six-week summer course. My answer was that I not only had so filled one, but should be glad to have a full year for such a course. "But," he said, "you wouldn't be teaching

methods only, you would have to teach the subject matter too, which they already know!" But, of course, they don't know the subject matter of geometry, or of algebra, or even of arithmetic. They can perform the operations more or less well, but from the teaching standpoint they know very little about it. Ask any group of teachers for various methods of approach to clear up different types of difficulties in understanding operations with arithmetical fractions; for a really simple general analysis concerning translation from the words of problems to the forms of algebra; or for an analysis of why a certain proof in geometry is, or is not, the best one, and what other methods of approach to the theorem are possible in a certain order of propositions, or would become logical in an altered order, and you will realize how little we really know about our subjects.

I should like to see each teacher required to take a very complete analytical course in each subject to be taught, where the teacher worked out, from the foundations up, each part of the subject with an attitude that combined that of the beginner (who presumably does not know what is coming) and the skilled mathematical investigator who has, running through his fingers, threads that lead in all directions, some to future use in the same or another mathematical field, and some to applications in other subjects or in out of school life. As a subject developed, many textbooks could be read and criticised, devices for various purposes could be analyzed and their possibilities weighed, the pros and cons of methods suited to various purposes and types of mind could be discussed, until a teacher would finish the course with a sound and usable understanding of the development of the subject, and an armory of weapons to meet any emergency arising in it. My only doubt is as to the possibility of accomplishing more than one subject a year if the prospective teachers studied all that went with the particular subject—the necessary psychology, the various methods of testing prognostically, diagnostically, and for mastery of certain content and powers, the English of clear accurate expression, and the various fields of application that should be made to contribute to the value of the course! It would be ideal, naturally, if each student could teach a class in the subject at the same time that he was taking this analytical course, though that plan seems impossible as most colleges are organized at the present time.

IX

What I have said may seem static in that it is meant to fit what is already coming to be. I should like to add one constructive suggestion that should apply to teachers of mathematics as well as to all other teachers. There should be some way to help students think not only of what is—important as that may be—but also of what ought to be, to whatever degree of practical idealism our vision can reach. Our aim, above all, is to make, through better individuals, a better race and a better future for the world. I have heard a teacher say that during fifteen years of teaching a subject he never asked himself why he was teaching it, he simply taught it as well as he could! I contend that he could not teach it, even passably, with such an attitude. Let us direct the minds of our young men and women toward the highest idealism for the race, let us train them to think of schools and teaching in terms of dynamic aims for betterment, let us show them that subjects are tools—each with wonderful possibilities, but no one all-sufficient—for carving out from our raw material the men and women who are to be. Only when, equipped with technical preparation, they also know for what they are working, and think in terms of human beings whom they are helping to find and to develop all their possibilities, will teaching reach its fullest stature.

OPPORTUNITIES FOR TRANSFER MAKING IN ELEMENTARY MATHEMATICS

By JOSEPH JABLONOWER

Head of the Department of Mathematics,
Ethical Culture School, New York City

I. INTRODUCTION

THE title of this paper is somewhat misleading. If the article has merit at all, the merit is not in the scientifically established validity of its position. This is not a study of the conflicting theories concerning transfer of function. No references are made here to correlation coefficients, although instances of probable error are frequent.

We take our thesis from two great mathematicians and teachers of mathematics. From Poincaré we quote:

> Is there anything that more needs fighting than dishonesty?—for this is one of the most common and degrading of vices of the natural man. Well! when we have caught the spirit of scientific method, of its scrupulous exactness, the horror of any suppression of fact, when we have grown to dread, as a stain upon our honour, the reproach of having even innocently cooked our results in the slightest degree—when this has become for us part of our professional pride, *shall we not carry into all our activities this desire for absolute sincerity, even to the point of no longer understanding what drives men to lie? And is not this the surest means to achieve the most rare and most difficult of all sincerities, that which consists in not deceiving one's self?* [1]

We quote Bertrand Russell from memory to the effect that truth is only with the gods and that man must content himself with truthfulness.

Both Poincaré and Russell regard truthfulness as the cardinal virtue. Poincaré hopes that mathematics will serve as the discipline to bring about the desired outcome in man's mental discipline.

Much has been done in recent years toward anatomical studies of the elements in the curriculum. Skills have been listed, specific abilities have been charted, the sum of which is intended or tends, at

[1] Italics are ours.

least, to become the net result of the pupil's work in the given field. Without denying the character of the service of these efforts in the direction of explicitness and definiteness, we cannot but point out that they have their dangers. Anatomic study is perhaps too complimentary a term for some of these exercises. They tend to dissect the subject and to leave it dissected. The sum of the parts in this instance does not necessarily equal the whole, for the sum may be only a collection instead of an integration.

II. ASSUMPTIONS AS TO TRANSFER OF FUNCTION

In the present armchair study of the problem we ask you to join us in leaving unsettled, as have indeed most laboratory psychologists left unsettled, the problem of the validity of the theory of transfer of function. We ask you also to make with us the following assumptions:

1. *Training tends to remain specific.* Even such traits as honesty or kindness are exercised by most individuals in specific situations only. Most men would not steal outright, yet a good recipe for obtaining an umbrella is to challenge the holder of an umbrella with the query—belligerently, of course—"Where did you get that umbrella?" It is not unlikely that the person thus challenged will give it up to you, convinced that it is your umbrella that he has "borrowed." Many a person, honest in most respects, has been known to report that the child who is really seven is only six years old, if six years is the age at which the railroads exempt children from paying fare.

2. *If transfer is to be accomplished, it must be practiced.* The story is commonplace, for it is typical of common experience, that a child cannot find the name for a collection of two *apples* and three *apples,* because his teacher is in the habit of speaking of *oranges* in his exercises. The college student who differentiates Y with respect to X, in the mathematics class, finds it exasperatingly difficult to differentiate S with respect to T, in the physics class. If the transfer is to be made, the incidental aspect of a relationship should be varied, so as to emphasize the essential aspect. Only the genius *discovers* the general or universal aspect of a relationship. The great mass of road-takers must be given the practice in making the generalization or the transfer.

3. *There is, on the other hand, the danger that the novice will*

make an undiscriminating transfer. We report, by way of illustration, the case of a child who underwent a painful operation at the hands of a surgeon. The experience brought on in him a condition that might come under the head of hysteria. A few weeks later, when he was taken to a barber shop, he reacted to the white coat which the barber wore with the same hysterical manifestations. "White coat" had become the symbol for "pain-to-me."

The assumptions in this discussion are therefore:

1. Training tends to be specific.

2. Transfers are made by pupils only if they are given practice in making transfers.

3. The undiscriminating person, meaning the modal person, tends at times to make the transfer to a situation the elements of which are similar, at best, only in form to those of the situation from which the generalization arose.

III. APPLICATION OF ASSUMPTIONS

In the light of these assumptions we point out that, over and above the need for developing specific skills, we must show our students the broad implications of our science, and the need for being on guard against an undiscriminating generalization concerning the science and its possibilities.

By way of illustration we shall discuss the following specific aspects of mathematical method or device, and point out their applicability in other fields or the limitations of their applicability.

1. The method of exclusion, in which we have an instrument of doubtful extension value.

2. The use of epithets, in which we have an opportunity to confess to a fault.

3. The solution of equations, in which we can show that an efficient cause is not necessarily an exclusive cause.

4. The theory of function, in which we can emphasize the interrelatedness of each with all—in no purely figurative sense.

5. The postulates, in which we see mathematics as a normative science in the true sense, setting a standard for frankness in stating initial assumptions, instead (as is done in most other forms of discourse) of insinuating the assumptions.

1. *The method of exclusion* is used in plane geometry in a few instances. Even in geometry it is well to reduce the number of instances to a minimum. In the case of the theorem, *If two angles of a triangle are unequal, the sides opposite them are unequal in the same order,* the method of exclusion is generally used, although the direct method is equally simple, and has an advantage over the indirect method in that it avoids for the learner the necessity of memorizing the place of this theorem, with reference to its converse.

But it is the opportunity that is offered to teachers when this theorem is being introduced that we wish to stress. This is an opportunity to discuss the reason for the applicability and the sufficiency of the method of exclusion in mathematics, and the inapplicability and the insufficiency of the method in other fields of discussion and discovery.

Why is the method applicable and sufficient in mathematics? Because the basis of comparison is clearly defined and the number of choices is limited. Two line segments or two angles or two arcs or two quantities of any given quality have but *one* of *three* possible relations: the first is greater than the second, or it is equal to the second, or it is less than the second. The elimination of any two limits us to the third.

How is the case in other fields of thought? It is like the one in mathematics only to the extent that the number of choices is limited, and the basis of discrimination is defined. But these conditions are rarely met with in fields other than mathematics, and the fallacy occurs when so limited a method is applied in indiscriminate fashion in those other fields, despite that fact. Hence the barrenness of discussions on such subjects as: *Who is the greater, Washington or Lincoln?* the basis of comparison not being defined; or *America or Guatemala or Country X is the greatest country in the world,* the basis of comparison not being defined and the number of possibilities being too unlimited to be considered economically in this fashion; or *The pen is mightier than the sword,* the terms again being very difficult to define; or *The mouth is for eating rather than speaking,* in which case both functions may characterize the organ rather than one function to the exclusion of the other, and where—not in the best circles, of course—both functions are sometimes manifested simultaneously.

It is our thesis that it is both an opportunity and a duty for the teacher of mathematics to "digress" from the immediate theorem in hand in order to discuss the method of elimination or exclusion as a method, to point out that it has serious limitations and that it is fruitful of much fallacious argumentation where it is applied indiscriminately.

2. Mathematics has an opportunity to confess to faults—and does so confess in some of its nomenclature: the terms *imaginary, surd, transcendental, infinity* are indications all of the human origin of mathematics, for these terms betray the human tendency to use the epithet. An epithet either glorifies or belittles something that is not clearly understood. The terms which we have just listed are illustrations of this function of the epithet.

In the world of economics may be seen some of the worst aspects of the use of the epithet to describe observed phenomena. As it grows into a more nearly exact science it is not unlikely that economics will discard such capitalized names as Business Cycle, Iron Law of Wages, and the like.

The use of the epithet betrays an emotional state on the part of the observer. While observers cannot avoid the emotional quality in their experience, they should avoid or reduce to a minimum the vocabulary of emotion in describing correlations of phenomena.

Science used to be less discriminating when it enunciated that "Nature abhors a vacuum," an obviously meaningless collection of words which describes emotionally and explains not at all the phenomena which it is intended to correlate. Science used to talk about "chemical affinity."

Scientists are trying now to be more careful in this respect. In their reports they seek to avoid words that have emotional tinge. An instance of this scruple in the use of words to describe the behavior of particles is the introduction of the terms "tractate" and "pellate" as substitutes for the more vivid and, therefore, misleading words "attract" and "repel."

It is a serviceable digression to speak of these matters when the term *surd,* or *imaginary number,* or any of the other terms to which we have referred, occurs in class for the first time. Mathematics, we like to say, is the science of necessary conclusions. Wherein is the

necessity? The necessity must lie not in the satisfaction which is derived in venting one's feelings through the epithet. It lies rather in the compulsion under which we human beings find ourselves, when we think at all, to conform to the laws of consistency. The limitations of this paper and, what is a more efficient cause, the limitations of the equipment of the present speaker prevent him from considering at this point the manner in which the impulse to be consistent is in itself emotional in origin and character.

3. We come to a third opportunity for a worthwhile digression. This arises when we introduce the pupil for the first time to the quadratic equation. Pupils often resist the notion that there are two or more roots or "correct" answers to a problem. "Which is correct?" they ask. The notion that either is correct, or that both are correct, is contrary to their usual and naïve experience. Here, for the first time, they meet an instance where an efficient cause is not necessarily an exclusive cause. A single effect may point to any one of a number of possible origins. Philosophically speaking, a single effect may have multiple causes, and a single cause may have multiple effects, any one of the members of these multiples being the only one observed for the time being. Is it far-fetched to make the analogy to religious controversies, in which peoples have presumed to urge, as finalities, guesses as to causes of the phenomenon of existence itself, and to stamp, as heretical and perverse, guesses that are proposed by other peoples?

4. The fourth instance of an opportunity for serviceable digression of which we wish to speak is the opportunity that arises in the discussion of the functional relation of two or more variables. We think of one sense datum as being a function of other sense data, when a change in the one datum is invariably accompanied by changes in the other data. $y = f(x)$ expresses in abstract form the mutual interdependence of each phenomenon with all others. This is a distinctive aspect of pantheism. It is what the poet means when he says:

> Flower in the crannied wall,
> I pluck you out of the crannies,
> I hold you here, root and all, in my hand,
> Little flower—but *if* I could understand
> What you are, root and all, and all in all,
> I should know what God and man is.

Events have remote, and therefore unsuspected, origins; far-reaching, and therefore unexpected, effects. Splendid isolation of self from other selves, of a people from other peoples, may be a questionable or an unquestionable ideal. Unquestionably, complete isolation is a practical impossibility. When we realize that our lives are penetrated by and penetrate the lives of others in an inextricable cause-and-effect relationship, we are likely to see in our every social relation opportunity and responsibility that spell human dignity.

5. The fifth and last of the list of purposeful digressions which we have selected arbitrarily is the consideration of the postulate as a mathematical prejudice. To the person who has a prejudice against prejudices, this classification is something of a shock. "One geometry," says Poincaré, "cannot be more true than another; it can only be *more convenient*." Such is the case with prejudices or postulates. Their fruit in terms of consistent systems and correspondence with measurable experience will determine the degree to which they are convenient. The notion of exclusive effect or cause, the use of the epithet whereby the strange is either anathematized or canonized, are examples of prejudices that we usually do not explicitly label.

Most, or nearly all, of our prejudices are hidden, sometimes even from ourselves. Bacon has attempted to classify them as the idols, the idol of the cave, the idol of the tribe, the idol of the theater, the idol of the marketplace. Our personal adjustments and other values are invested in these prejudices. Sometimes, without knowing it, we resent the attempts of adversaries in a discussion to uncover them. We then indulge in indignant and high-pitched assertions to the following effect: "Every sensible person knows that," or *"Naturally,* such and such is the case," or, "It is self-evident," or "Any fool knows that," or "It goes without saying," and so forth, and so on. These ejaculations are often panicky attempts to hide from our hearers and from ourselves, as well, the fact that our position is logically not tenable, or that, at any rate, we have never before examined the logical implications of it.

We shall permit ourselves to relate two stories which are intended to illustrate the manner in which we carry about with us unwittingly prejudices which we repudiate as soon as we become aware of them.

The first of these is of a lady who went shopping in a department store of a large city. She had her little child with her and took

advantage of the kindergarten which the department store places at the disposal of its patrons, leaving the child there among other children in order that she might the more expeditiously accomplish her shopping mission. The lady took longer than she expected in making the rounds of the departments. She heard the bell sound the signal for closing, and hastened to the kindergarten for her child. There was but one child left, and that, a colored child. At this point you are likely to indulge in sympathy for the lady. But she needs no sympathy. The child is hers. The lady is colored, too.

The second story is less dramatic but equally illustrative: A beggar has a brother, but the brother has no brother. The answer, of course, is that the brother has a sister. Our beggar is a woman.

The point of these stories, like that of so many that take us unawares, is that unconsciously we use synonymously terms that are repositories of prejudices. A lady, for the average white Nordic, is not reasonably to be thought other than white. A beggar, in our ordinary experience, is usually a man.

Many a debate, in high schools and in congress, would lose its *raison d'être* were it not for the equivocal use of terms or for prejudgments that none of the participants bothers to make explicit. Witness the following:

Editorial in the *New York Sun,* OCTOBER 14, 1924

PROFESSOR IRVING FISHER OF YALE HAS COME OUT FOR JOHN W. DAVIS

Some of the *Sun's* readers may have forgotten who Professor Irving Fisher is. Let us freshen their memories.

A month after the death of the late President Harding, Professor Irving Fisher, who was stumping the country for the League of Nations Non-Partisan Association delivered a speech in East Liverpool, Ohio, in which he declared that during the campaign in 1920 Senator Harding said to him, first pledging him to secrecy until after election: "I want the United States to get into the League of Nations as much as you do."

This was equivalent to accusing the dead President of having sailed under false colors in the campaign of 1920. Nobody believed Fisher and everybody condemned him for uttering this shocking statement about a man who could no longer answer.

So far as the *Sun* knows, Professor Irving Fisher has never retracted this slanderous statement.

Now Fisher announces that he is supporting John W. Davis and one of the

reasons he gives for his stand is that Davis is "one who can restore honesty."

Can Mr. Davis restore the honesty which Professor Fisher lost a year ago?

FROM *New York World*, JANUARY 19, 1925

Pointing out that the amendment (the proposed Child Labor Amendment) would give lawmakers authority to prohibit the labor of all persons under eighteen, Mr. Marshall said:

"I worked before I was eighteen years old, and my only regret is that I did not do more manual labor when I was young. You would not have so many gunmen if the boys of to-day were taught to work. The old-fashioned virtue of industry is what we lack in this age."

. . . . . .

"Remember that the State of New York is not beloved in all parts of the South and West. If the proponents of this measure are sufficiently successful, no one can tell what some might try to do to destroy our prosperity by passing similar laws hampering our activities in the State."

FROM *School and Society*, MARCH 6, 1926

Using the slogan "Wanted: Brains at the Top," the associate and district superintendents and high school principals of New York City have issued a pamphlet setting forth their arguments for increases in salaries approximately $5,000.00 higher in each case than those allotted them in the Ricca teachers' salary bill which was introduced in the State Legislature last week. . . .

The pamphlet points out that the salaries sought are only a small percentage of the expenditures which the supervisors control. It is stated for example that the superintendent of schools is at the head of an organization spending $105,000,000.00 a year, and that if he drops in efficiency but 1 per cent, the loss to the taxpayers is $1,000,000.00. It continues this line of argument for the positions of associate superintendent, district superintendent, and high school principal. . . .

These clippings can, no doubt, be matched by hosts of others. In the first, notice the implication that a man who is dead could not have been guilty of having made a secret pledge, the gradual insinuaton that any person who makes an assertion to the contrary is necessarily dishonest, and finally, that if such a person supports a candidate for office, the candidate himself becomes disqualified. The other articles quoted are worthwhile exercises in the discovery of unexpressed but vital assumptions.

Herein lies the distinctive character of the postulates of mathematics. They are prejudgments, convenient prejudgments, made explicit through careful tabulation, in advance of their use in the elaboration that constitutes much of our mathematical thinking. The student who will not accept the postulates of mathematics is within his rights in all logic to reject them. He simply deprives himself of the fruits of these assumptions. But the student who accepts them is in a position to examine their elaborations into a system which up to the present has, on the whole, squared with experience.

Parenthetically, we venture to urge that we teachers think of postulates not as self-evident truths (the phrase "self-evident truth" is really a logical and psychological self-contradiction). Rather should we speak of them as statements which we accept without proof.

Mathematics is *the* normative science, because of the autonomous character of its development, as contrasted with the empirical reasoning that necessarily characterizes the natural sciences and the instinctive reasoning that characterizes our everyday adjustments. Professor Keyser, in his *Thinking about Thinking,* elaborates this idea in interesting fashion. Psychologists and philosophers might take issue with him in his divisions of types of reasoning. We must agree with him, however, that some types of reasoning are predominantly autonomous, where the reasoning is from accepted premises and definitions, some types are predominantly empirical, where the reasoning is almost entirely from observation that is determined by the character of the instrument and of the observer, and finally some types are predominantly instinctive, where the stimulus-response relation occurs with little or no gap for conscious and deliberate stating of conclusion on the basis of listed elements in the stimulus-situation.

Every science which seeks to examine the grounds of its own development—and every science at some time in its growth pauses to do so, if only to take stock and to decide the next step—approaches the mathematical science in form. Physics and chemistry thus tend to become mathematical.

IV. SUMMARY AND CONCLUSIONS

We began with a statement of assumptions that training tends to be specific, that discriminating transfer making must be practiced, and that transfer making is often practiced indiscriminately.

We have considered five of the opportunities which we find in mathematics teaching for the making of such transfers or digressions, to wit:

1. The method of exclusion, which has its limitations and uses in other fields;
2. The epithet, which is found even in mathematics;
3. The quadratic equation, which gives intimations that a sufficient cause is not necessarily the cause;
4. The theory of function, which gives intimations of the interconnectedness of each with all, physically and socially; and
5. The posulates, which are examples of what we should try to do with our hidden prejudices in order to achieve communion with and understanding of our fellows.

Discussions in class of the topics which we have thus outlined are admittedly serious digressions. Digressions from what? It depends on our conception of the purpose and the function of mathematics teaching. We must develop skills in mathematics manipulations. In view of the fact that the time at our disposal is limited, is it worth trying to introduce in elementary classes the broader implications of our subject? Can they be introduced with any hope of achieving any significant results?

In his *Introduction to Mathematics,* Professor Whitehead tells us that much of the difficulty of mathematics teaching can be attributed to its extreme preoccupation with the trivialities of problem and equation solving. Would it not be worth our while—worth our while in the best sense—to displace some of these trivialities with such types of exercises as we have indicated? Recent changes in the content of courses seem to give hints of a movement in that direction.

NEW STUDIES IN EDUCATION

A CITIZENSHIP PROGRAM FOR ELEMENTARY SCHOOLS *

THE PROBLEM

THIS study was made to determine what might reasonably be expected of the elementary school in offering some guiding principles and suggestions for developing a citizenship program. The burden of the study had to do with (*a*) What is a citizenship program? and, (*b*) What are the essential steps in its development?

GENERAL METHOD

The writer, as a member of the elementary school staff in the training school at Ohio University, spent three years working with her colleagues on the problem of changing the work of the school from the type which demands passivity on the part of the children to the type which involves their active participation, and the assumption of more and more responsibility for the success of the school work. An additional year of study was devoted to making a critical analysis of the program developed, stating the philosophical, psychological, and sociological principles underlying the change, and making a careful examination of the literature on citizenship work and character education in the elementary school published during the period 1900 to 1927 inclusive.

CONCLUSIONS AND SUGGESTIONS

Four distinctly different types of elementary schools which are prevalent in our educational system to-day were described and the theories underlying their procedures stated: the formal type of school, in which the teacher is an autocratic dictator, is the most common; the "pep school," which seeks to motivate subject matter by introducing scores of mental setting-up exercises, holds the second place; the "free school," which is so free that it is purposeless and chaotic for teachers and children alike, is portrayed; the "modern school," in which teachers and children have coöperated in working out their plans in a social setting that promotes the growth in habits of good citizenship so desirable in a democratic society, is considered and recognized as the best type of school.

That the development of a citizenship program in the elementary school must be based upon generally accepted educational principles of psychology, philosophy, and sociology, was recognized.

1. The psychological principles which should guide teachers in the work in the elementary school are as follows: all learning is a matter of habit formation; habits are specific rather than general;

* By Edith E. Beechel, Ph.D. Teachers College, Columbia University, Contributions to Education, No. 335.

the laws of learning must be taken into account; the learning ability of individuals varies; the mental, moral, and social characteristics of children vary at different age levels.

2. The basic philosophical principles which underlie the organization of the work are: the modern school is so conceived, organized, and directed that the need for practicing democratic habits of good citizenship is ever present; the good citizen is one who thinks, feels, and does his work in such a way that what he does contributes to a higher common good.

3. The sociological principles which should control the work of the school are three: it is only in social settings that opportunities for the development of habits of social control arise; the need for forming habits of social control arises only in a social environment; adventures in organization are undertaken when groups of people need new ways of expressing their opinions.

A citizenship program in an elementary school was defined as the coöperative effort of a teaching staff in organizing the work of the school so that there would be abundant opportunity for girls and boys to participate intelligently in the affairs of the school.

A study of the mental, social, and moral characteristics of children at the two age levels represented in the elementary school was made in order to determine what habits should be formed, what standards of achievement could be expected, and in what grades responsibility for emphasis on the formation of certain habits was to be placed. It was made clear that the change from the old to the new must be gradual because it takes time to build habits of self-control and social responsibleness. Any school desiring to launch a citizenship program should formulate a tentative list of the citizenship habits which it is agreed shall stamp the conduct of its citizens and then organize the work of the school so that natural social life will afford abundant opportunity for securing the practice necessary to form the habits.

Three vital questions were discussed in the study of citizenship: (*a*) Shall there be a course of study in citizenship? (*b*) By what method—the direct or the indirect—should the practice of citizenship habits be secured? and (*c*) What place, if any, should be given to merits and rewards in a citizenship program in an elementary school?

The study made clear that in the development of a citizenship program the change from the old to the new must be very gradual because it takes time to build habits of self-control and social responsibleness. It also takes time to adjust the administrative machinery of the school to meet the demands of a socialized situation.

CONSUMERS USES OF ARITHMETIC *

THE PROBLEM

WHAT and how much arithmetic do adults use aside from their vocations? How much and what arithmetic should be taught in the elementary schools of the nation to meet the adult requirements in the following non-vocational life situations?: 1. Buying at the store, etc. 2. Making change. 3. Reading magazines and newspapers, and

* By A. O. Bowden, Ph.D. Teachers College, Columbia University, Contributions to Education, No. 340.

non-technical books for information and pleasure and recreation. 4. Writing letters. 5. Making investments of personal savings. 6. Filling out income tax sheets. 7. Traveling. Aside from vocational requirements these situations cover all cases where any arithmetic could be used. The amount of arithmetic used in any one vocation is an easy matter to determine.

THE METHOD

The method used in this study is based upon (*a*) a historical study of the investigations that have been made in the field of arithmetic content. This is one source of the data presented. (*b*) Another source of data used here is found in the answers of parents and guardians of sixth grade school children. These parents were asked to check the arithmetic they have used since leaving the elementary schools. Blanks for this purpose are called the "Answeraire," and are constructed so that the parents could check a long list of type problems found in arithmetic texts now or recently in use in the elementary schools of the country.

There are two sets of blanks. The first of these was administered by the writer and two other persons familiar with the problem. From the results of this blank a list of type problems was selected to form the basis of the second blank. This second blank was mailed to superintendents of city schools in certain cities in the Eastern, Southern, Northern, Central, Southwestern, and Northwestern sections of the United States. These superintendents gave these blanks to sixth grade teachers who gave them to the pupils to carry home for their parents to fill out. When the results were tabulated, central tendencies determined and correlations worked out, the following conclusions seemed justified.

THE RESULTS

There are 18 categories or main headings, such as Compound Denominate Numbers, etc., represented in the blanks described above. Data showed that only eight out of the 18 listed are used in large enough amounts to warrant inclusion in a course of study in arithmetic in the elementary schools. These eight are:

1. Numeration and Notation, found useful chiefly in reading.
2. United States Money.
3. Compound Denominate Numbers, such as Dry Measure, etc.
4. Simple Fractions—the most elementary kind, such as ¼, ½, ¾.
5. Decimal Fractions used in dealing with United States money and similar situations.
6. Simple operations in percentage including discounts at the store.
7. Aliquot parts of 100 such as 12½ equals ⅛.
8. Mensurations, used chiefly in reading.

It was arbitrarily assumed that those types of problems which are used by less than 25% of the adult population of the United States should be discarded.

On this basis it is concluded that the public schools have been and are now in most cases teaching 85% more arithmetic beyond the four fundamental operations of addition, subtraction, multiplication, and division than is necessary to accomplish the values outlined in this study.

Most of the situations in which people use arithmetic aside from vocational

uses are found in buying at the store and in reading.

From the data a Social Value Index was worked out by which the relative value of the various categories may be determined. The three most important categories are: 1. Compound Denominate Numbers. 2. Simple Fractions. 3. Cash Discount at the store or percentage without the time element.

Arithmetic has been shown to be the chief source of non-promotion in the elementary grades. It is too abstruse and is couched in language beyond the years, experience, and comprehension of most pupils who are required to study it.

On the basis of the findings of this dissertation it should be possible to formulate roughly the content of the arithmetic material that should go into the textbooks published for the use of the elementary schools of the United States.

Not only may the content of the course in arithmetic be determined from this study but also some clue to the best method to be used in teaching much of this content. This is true because if much of the adult use of arithmetical knowledge is in general reading, such as newspapers and magazines, we have a point of emphasis for a great deal of the material that we teach which differs from that usually employed in training for skills and processes.

The Social Value Index will enable us to obtain a more selected collection and a different presentation of the material in arithmetic thus solving in part the non-promotion problem that is now so perplexing and expensive.

Finally, this basis of eliminating some of the useless content of the arithmetic course will give relief to the rest of the content demands in other subjects in the curriculum.

A PERSONNEL STUDY OF DIRECTORS OF PHYSICAL EDUCATION FOR MEN IN COLLEGES AND UNIVERSITIES *

TWO problems present themselves in the field of physical education direction in institutions of higher learning. The first concerns itself with the need for actual information about the profession for purposes of vocational guidance. The second problem concerns itself with the application of this factual information in order that college physical education may better serve the purpose for which it is intended.

In order to discover facts about the position of director of physical education in college or university the massed vocational history technique was employed. This technique consists in determining the duties, rewards, social relationships, and experiences of successful workers in the field, and applying scientific methods in the compilation of the data. This study involves 178 full-time administrative heads of departments of physical education in institutions of higher learning in this country.

The results present a composite picture of present-day directors of physical education in the colleges and universities included in this study, and reveal many hitherto unknown facts about the profession.

* By Harry Alexander Scott, Ph.D. Teachers College, Columbia University, Contributions to Education, No. 339.

I. DUTIES OF DIRECTORS OF PHYSICAL EDUCATION IN COLLEGES

1. Viewing the massed data directors of physical education in colleges and universities are responsible for a median of 3.5 departments.

2. The most frequent combinations of departments administered are:

(*a*) The department of physical education for men in combination with the department of intercollegiate athletics.

(*b*) The two departments under (*a*) in combination with that of teacher training in physical education.

3. The most frequent single departments administered are:

(*a*) The department of physical education for men.

(*b*) The department of intercollegiate athletics.

(*c*) Teacher training in physical education.

4. The teaching duties of directors consist in coaching athletics, teaching physical education theory, the theory of athletic sports, and unspecialized games. The average number of hours per week devoted to these duties range from 3.3 to 12.6.

5. Administrative duties concern themselves with attending to correspondence, matters of organization, committee, staff and faculty meetings, supervision of athletics, supervision of building construction, work on records, and conferences with students. The average number of hours per week for these duties range from 1.3 to 6.8.

6. Health duties consist in supervising the medical examination of incoming students, making health examinations, advising students in matters of health, making sanitary inspection of buildings, doing corrective physical education work, and teaching hygiene. The average number of hours for these duties range from 1.3 to 9.0 per week.

II. SALARIES AND VOCATIONAL PROGRESS

1. Present-day directors of physical education entered upon a career in this field at the median age of 23.9 years.

2. Directors of physical education have been in the field for a median of 15 years, and have been employed by 4.1 institutions.

3. Directors of physical education for the most part held their initial positions in high school athletics. This was closely followed by the field of college athletics, and next the field of college physical education. The median age at beginning ranged from 24.0 to 26.2 years, and the median salary from $1340.00 to $1491.00. The median year of the initial position was 1914.

4. The age on receiving the first college position was 27.0 years, the median salary $1967.00, and the year of entry 1919.

5. The present median age and salary of directors are as follows:

Institution	*Median Age*	*Median Salary*	*10–90 Per Cent Range of Salaries*
State	41.2	$4500.00	$3540.00–$7195.00
Private	39.8	4014.00	2970.00– 6030.00
Denominational	34.5	3213.00	2390.00– 5073.00
Combined Groups	38.8	3783.00	2525.00– 6147.00

6. The median age and salary on attaining the various academic ranks were as follows:

	Instructor	*Assistant Professor*	*Associate Professor*	*Professor*	*No Rank*
No. of Cases	26	29	19	111	29
Per cent	15.0	16.8	11.0	64.2	16.8
Median Age	25.3	30.1	31.3	32.9	
Median Salary	$1900.00	$2420.00	$3025.00	$3350.00	

III. ACADEMIC STATUS AND TRAINING OF DIRECTORS OF PHYSICAL EDUCATION IN COLLEGES

1. Combining all degrees of equal rank 96.2 per cent of present-day directors hold a Baccalaureate degree, 22.7 the Master's, and 10.7 per cent the Doctor's.

2. Directors of physical education to-day hold more Bachelor's and Master's degrees than directors in 1908, but the number of Doctor's degrees to-day is less than it was 20 years ago.

3. While in college present-day directors for the most part majored in subjects other than physical education.

4. Directors were outstanding athletes in "major" sports while in college, having played on a median of 2.3 years, winning 1.9 awards, and acting as captain of the team 1.2 years.

5. Directors participated in one or more non-athletic activities while in college, including such activities as debates, dramatics, glee club, and student body offices.

IV. PERSONAL AND SOCIAL RELATIONSHIPS OF DIRECTORS OF PHYSICAL EDUCATION

1. Most directors are married, and have one or two children. They are church members, mostly in Protestant churches. In lodge memberships most of them belong to the masonic order. Directors belong to the various civic clubs of their communities and otherwise render public service by participating in local, state and national public affairs.

2. During the World War most directors served in the army. As regards their present military status most directors are in no way connected with the system of national defense.

V. PRACTICAL INFERENCES

Properly used, the findings will be of practical benefit, as follows:

1. As a basis for workers already in the field to guide their professional development.

2. As a basis upon which the Society of Directors of Physical Education in Colleges may institute measures designed to enhance the professional status of the field.

3. As an aid to presidents of institutions in the selection of candidates for positions in physical education; and as a basis for determining policies toward the department of physical education.

4. As a matter of information to individuals in fields closely allied to physical education; and to the lay public.

5. As a basis for the vocational and educational guidance of students contemplating careers in college physical education.

PERSONAL TRAITS AND SUCCESS IN TEACHING*

THE PROBLEM

PROGRESS in human engineering brings increasing appreciation of the need for less "trial and error" in learning how to select teachers. This study offers some contributions to the general question: "How can we detect and measure those personal traits which are essential supplements to intelligence in successful training?"

* By Elizabeth Hunt Morris, Ph.D. Teachers College, Columbia University, Contributions to Education, No. 342.

GENERAL PROCEDURE

The investigation includes: (1) consideration of the main aspects of personality; (2) analysis of the meaning and interrelation of such characteristics as special likes or dislikes, insight, resourcefulness, tact, and so on; (3) selection of traits which seem to constitute leadership, especially in teaching; (4) formation of a Trait Index for the measurement of these traits; (5) scores on this index from 796 people; (6) comparison of such scores with data (concerning the academic average, health, intelligence, success in practice teaching, amount of prejudice, scores on a "Sympathy" test, emotional history records, and estimates of qualities affecting success in teaching) collected from seniors in a college for teachers; and (7) some inferences and suggestions resulting from the study as a whole.

FINDINGS AND APPLICATIONS

Personality is the total blend of reaction tendencies, and these tendencies must be measured in terms of definite situations. An individual's personality to a great extent reflects the kind of stimuli which his environment constitutes *for him*. There is some recognition of this interplay of outer conditions and inner tendencies in explanation of the success of a student under one set of conditions whereas there was failure under different conditions. Selection of teachers, however, will naturally be guided by the standard, "We desire people who are most apt to succeed in the various, probable, teaching situations." It is important, therefore, to measure as many significant tendencies of the individual as possible.

Correlations were figured to indicate the relation of the variables mentioned under (6). The calculations were based on returns from 60 seniors, for whom all the kinds of data were available, but carry rather more weight than size of group would suggest, since the 60 were representative of much larger groups (e. g. 178 Trait Index scores, 213 practice teaching grades, etc.) for the various kinds of data.

The highest r found (zero order) was $+ .545 \pm .060$ (P.E.) and occurred between grades in practice teaching and academic averages. Next in size was $r + .512 \pm .064$ between grades in practice teaching and scores on the Trait Index.

The partial correlation technique is probably a somewhat unsuitable device for comparing any two of the variables, because elements of personality cannot be so artificially separated; they are too intricately interrelated. There is, however, significant suggestion in the fact that finding partial r's for those combinations involving academic averages, practice teaching grades, and Trait Index scores, resulted in a maximum partial r of $+ .463 \pm .068$ for grades in practice teaching and Trait Index scores, and a partial r of $+ .429 \pm .071$ for grades in practice teaching and academic averages.

Scores on an intelligence test showed an r of $+ .233 \pm .082$ (partial r, $+ .327 \pm .078$) with practice teaching and an r of $- .104 \pm .086$ (partial r, $- .262 \pm .081$) with Trait Index scores.

The multiple regression equation for Trait Index scores indicates that health is probably one and one-fourth times as significant in relation to the personal qualities measured by the Trait Index as intelligence, and is significant positively instead of negatively.

Correlations involving prejudice scores were found to be negative as would be expected, the largest ($-.332 \pm .077$) being that between intelligence and prejudice.

Construction of a probability table showed that 64 per cent of the students scoring in the upper two-fifths of Trait Index results also scored in the upper two-fifths in practice teaching, and that high score on the Trait Index was more of a recommendation than low score was condemnation.

From these facts it seems clear that academic averages, health ratings, scores on intelligence tests, and such a measure as Trait Index scores are important indices of probable success in teaching. These *measures should be considered as a composite* rather than separately, since it was found that a student's relative ranks in different kinds of measures were significant. Evidence of the desirability of a "balanced" personality comes from the fact that students having similar ranks in different kinds of measures were found to succeed better than those ranking high in one kind of measure and low in another. This was found to be especially true if the low rank referred to emotional stability.

COLLEGE NEWS

EDUCATIONAL ADMINISTRATION

Following the recommendations made in the survey of the schools of Newburgh, N. Y., the Board of Education has succeeded in securing legislation which makes the Board of Education independent fiscally. The fiscal year has also been changed by this same Act to conform to the school year. The school budget is thus placed entirely in the hands of the Board of Education.

The Report of the Survey of the Schools of Newburgh, N. Y., has just come from the press of the Bureau of Publications, Teachers College. A copy has been sent to each of the members of the classes who participated in the field work. The report covers 312 pages of ten chapters which are as follows: Scope of Educational Opportunities in Newburgh; The Administration of Elementary and High School Opportunities in Newburgh; High School Curricula and Courses of Study; The Learning Process; Health and Physical Education; Educational Results; Teaching Personnel in Newburgh; Future Outlook and School Building Program; The Financing of Education in Newburgh; and The Administration of Schools in Newburgh.

Members of the first major course in educational administration have begun their field work in connection with the survey of Perth Amboy, N. J. This survey will be a comprehensive study of the whole school system. The report will be made to the Board of Education in May. The members of the staff who are participating in this survey are Drs. Strayer, Engelhardt, Alexander, Mort, Elsbree, Tidwell, Clark, Newlon, and Williams.

Professors George D. Strayer and N. L. Engelhardt have completed a report for the directors of the St. Agnes School of Albany, N. Y., covering the character of the school plant which should be developed in the future. The presentation of this report was made by Dr. Engelhardt to the Board of Directors on Saturday, March 23. Mr. Thomas C. Burton, graduate student in administration, assisted in the preparation of this report.

Mr. Whit Brogan will assume chief responsibilities September 1929 for Greenville School District No. 6, one of the rapidly growing suburban school districts in Westchester County, N. Y.

Dr. Willard S. Elsbree is making an intensive study of teachers' salaries in Yonkers, N. Y. This study is being conducted under the auspices of the Teachers' Association and a citizens' committee. The report is to be delivered June 1.

Professors George D. Strayer, Paul R. Mort, and Willard S. Elsbree delivered the report of the survey of the schools of Maple Heights, Ohio, to the Board of Education and at a meeting of the citizens of the community April 1. This report contained recommendations concerning every aspect of the school system.

Professor Mort spent March 8 and 9 in Denver, Colorado, in conference with officials of the State Teachers Association on the problem of public school finance in Colorado. He spent March 11 at Lansing, Michigan, in conference with officials of the State Teachers Association and with the Senate Committee on Finance concerning educational measures before the Michigan Legislature.

ADVISERS OF WOMEN AND GIRLS

Miss Fannie Starr Mitchell, dean of girls of the high school of Greensboro, North Carolina, before a joint session of superintendents, high school principals, and deans of the North Carolina State Teachers Association, gave a most interesting report of her recent study of the situation with regard to high school deans in that state. She reported that of the 147 high schools of the state which have more than 150 pupils, all but 15 had replied to the question as to whether they had an officially appointed woman to supervise the activities of the girls. Of the 132 principals who replied, 55 stated that they had such a person. It is interesting to note, however, that some of the persons so designated by the principals were unaware of their appointment. This discrepancy in the understanding in the matter of the dean of girls is not characteristic of North Carolina alone. Other states show similar lack of agreement concerning whether or not there is a dean of girls. In New York State 20 per cent of the persons so designated by their principals seem to be unaware of their responsibilities. It is probably safe to assume that where this is the situation, there is no constructive program of work for girls being carried on. Miss Mitchell's study is a part of a larger investigation of the work of deans of girls being made under the supervision of Dr. Ruth Strang.

In connection with the Housing Unit of the Advisers course, the Advisers Club visited the headquarters of the Studio Club at 210 E. 77th Street, April 9. After an inspection of the dormitory, Mrs. Sheila Allen, director of the club, spoke to the group on the organization of the house as a club center.

Professor Sarah M. Sturtevant addressed the superintendents and principals of Syracuse on the subject, "The Needs of Girls in Public High Schools," in April. In the discussion which followed, the duties and qualifications of the dean of girls, her place in the school system, and the organization of her work were examined in detail. Professor Sturtevant spoke also before the alumni of Syracuse University relative to the same subject, and gave a series of three lectures to the teachers of the Union Free School District of Hempstead, Long Island, on the following subjects: "Education: What Is It All About?"; "Discipline from an Educational Point of View"; and "Education in the Art of Living."

Miss Irene Eldred is to serve as

Y.W.C.A. secretary at Winthrop College, South Carolina, for the summer session.

Mrs. Adeline Kerlin, at present a member of the Advisers class, has been appointed dean of women and associate professor of music at Long Island University.

Miss Thelma Mills has accepted a position for the coming year as research assistant in the Bureau of Collegiate Educational Research at Columbia College.

COLLEGE ADMINISTRATION

During the year 1929–30 the major course will be offered in two sections, one dealing with "Administrative Problems of the College," the other with "Instructional Problems of the College." This arrangement will permit more detailed attention to each of the two groups of problems than has been possible heretofore and students will be permitted to register for either or both of the sections according to their interests and objectives. The following professors and lecturers will participate in presenting these courses: Dean Emeritus James E. Russell; Professor E. S. Evenden; Professor F. B. O'Rear; Professor Clarence Linton; Professor Ben D. Wood, of Columbia College; Dr. Clyde Furst, Secretary of the Carnegie Foundation for the Advancement of Teaching; Dr. Robert L. Kelly, Executive Secretary of the Association of American Colleges; and Mr. Donald P. Cottrell, Associate in College Administration at Teachers College.

Dean Emeritus James E. Russell is giving a series of five lectures to the class in College Administration. Meetings are held at the regular class hour each Wednesday.

A number of specialists in the field of higher education from other institutions will coöperate with the regular staff in offering courses for the coming summer session, including: President George F. Zook, of the University of Akron; President L. B. Hopkins, of Wabash College; Dean Raymond Walters, of Swarthmore College; Treasurer Raymond N. Ball, of the University of Rochester; and Dean Francis F. Bradshaw, of the University of North Carolina.

Dr. F. B. O'Rear visited the University of Maine on April 18 in connection with the Maine Survey of Higher Education. Plans have been made whereby Dr. E. S. Evenden and Dr. O'Rear will study the physical plants of the institutions participating in the survey early in the month of June. The Evenden-Strayer-Engelhardt Score Card for College Buildings will be used in judging the physical facilities of the institutions concerned.

EDUCATIONAL SOCIOLOGY

Professor Daniel H. Kulp addressed the Parent-Teacher Association at the Perth Amboy Grammar School on "What Ails Our Youth?"

Professor David Snedden gave a talk January 10 to the students of Connecticut College on the "Prospects of a Science of Education." He addressed the teachers of Freeport, Long Island, on the topic, "Making a Science of Education," January 30.

The Educational Sociology Club's calendar for November included a theatre party to "Gods of Lightning," followed, a few days later, by a discussion of the play; and an afternoon and evening trip through Negro Harlem. On December 14 Dr. Dorothy Thomas, of the Child Development Institute of Teachers College, was guest of the club at the "Chicken Pie Supper" meeting. Dr. Thomas gave a most interesting talk on the sociological aspects of her research work at the Nursery School. Miss Jane E. Hoey, assistant director of the Welfare Council of New York City and member of the New York State Crime Commission, talked to the club on "Proposed Changes in the Administration of Justice and Measures Suggested for the Prevention of Crime," January 11. On February 2 a trip to the lower east side for the purpose of studying the city's unemployed was followed by a visit to the Night Court. This trip completed the program for the first semester.

EXTRAMURAL COURSES

Professor James F. Hosic spoke to the teachers of the Catholic teaching orders of the Diocese of Philadelphia on "Training in Oral Expression," February 16. He addressed the elementary department of the schools of Battle Creek, Michigan, on "A Program of Activities in the Elementary School," and conducted a luncheon conference with the principals of that city on "The Technique of Supervision," February 20. On February 21 he discussed the Coöperative Group Plan of organization of the elementary school with the principals and supervisors of the city of Ann Arbor, and in the evening was the guest of the Teachers College Club of Ann Arbor and Ypsilanti at their annual banquet. On February 22 he made two addresses before the teachers of Jackson, Michigan, and surrounding territory, and in the evening met with the Michigan State Council of Supervisors in conference on recent forward steps in supervision.

During the period of the convention of the Department of Superintendence in Cleveland, Professor Hosic assisted in organizing a Joint Commission on Terminology, Functions, and Relationships in Supervision, made up of four representatives each from the Department of Superintendence, the Department of Elementary School Principals, and the Department of Supervisors and Directors of Instruction. Professor Hosic was made chairman of the Commission.

He also acted as secretary of the Department of Supervisors, attended the meeting of its board of directors, and spoke at its Tuesday session on "A Balanced Program of Supervision." He addressed the Department of Elementary School Principals February 25 on "The Technique of Democratic Leadership."

FINE ARTS

Mr. Charles J. Martin exhibited a selection of his water colors at the Morton Gallery.

Professor Albert W. Heckman and Mr. Arthur R. Young have prints in "The Fifty Prints of the Year," which will go on tour in the near future.

Professor George J. Cox gave a talk to the Fine Arts staff on the International Exhibit at Prague to which he was one of the three official delegates from the United States. After the report of the

exhibit Professor Cox told of his experiences on a trip through Greece, which he had taken last summer.

Mr. Arthur R. Young has just held an exhibit of some of his water colors and prints at the Macy Galleries.

An exhibit of about forty sketches in black and white, and water color—work of Mr. Young's students in Teachers College classes—is being held at the Panhellenic Club during this month.

During the Eastern Arts Association Convention, which was held in New York City this year, from April 2 to 5, the department of Fine Arts held two exhibits; a small one in a special gallery at the Art Center, and a much more extensive one in the studios at Teachers College and the Horace Mann School. Also on April 3 a luncheon was held at the College, which was attended by many former and present students and staff members of the Fine Arts department.

FOODS AND COOKERY

Professor May B. Van Arsdale attended the meeting of the Council of Agriculture and Markets in Albany March 3.

The department of Foods and Cookery entertained the members of Miss Grace Dodge's Domestic Circle on their annual visit, March 21. They attended a demonstration by Miss Barrows and afterwards a tea was given for them by the members of Mrs. Lillian M. Gunn's catering class. The Domestic Circle was started when Miss Dodge was a young woman, and the members have met regularly ever since that time. They meet every two weeks.

HEALTH EDUCATION

Professor Thomas D. Wood presided at the annual meeting of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association in Cleveland, February 26. Dr. Wood gave an address at the annual meeting of the Boston Health League on "Child Health Education," at the State Teachers College, in Boston, Massachusetts, March 4. He gave two addresses at the annual meeting of the South Carolina State Teachers Association, Columbia, South Carolina, March 22.

HISTORY OF EDUCATION

Professor Willystine Goodsell addressed the Middle Atlantic Division of the American Nurses Association on the subject of "Present Trends in the Education of Women," April 26.

HORACE MANN SCHOOL FOR BOYS

At a recent meeting of the Administrative Assistants Association of the High Schools of New York, held at the Fifth Avenue Hotel, Mr. Charles C. Tillinghast delivered an interesting address on the subject of "The Present Tendency in Progressive Education." After making the point that the present trend in education was toward a greater emphasis upon the needs and interests of the individual, Mr. Tillinghast went on to show how research could make important contributions on such matters as curriculum, program, character-building, and health. More than thirty men and women representing the Asssociation itself and most of the high schools in the vicinity attended the meeting. On March 16, Mr. Tillinghast made a similar ad-

dress before a body of Teachers College Alumni at the Hotel Walton in Philadelphia.

How a system of athletic training for all may result in the general prosperity of varsity teams as well has been successfully demonstrated at the Horace Mann Boys School during the past five years. A system of intramural league sports for boys not able to make school teams has not only made it possible for individuals to derive great profit but has also developed abundant material for interscholastic competition. Since the inauguration of this plan, Horace Mann teams have made many impressive records.

Dr. Otto Peltzer, world famous as a runner and known throughout Germany as an educator, will spend the remaining two months of the term teaching German and French in the Boys School. When he was in this country slightly less than a year ago as a guest of Teachers College, Dr. Peltzer visited the school and expressed a desire to teach here. In Germany he holds a position in the *Freie Schulgemeinde*. He is particularly interested in the country day school which is still very much in an experimental stage in his country.

INDUSTRIAL ARTS EDUCATION

Dr. Fred Strickler spoke before the New Jersey Vocational Educational Conference held at Elizabeth March 16, illustrating his talk with lantern slides showing the industrial arts work of the Lincoln School.

Professor Frederick G. Bonser gave an address before five hundred third and fourth grade teachers in Cleveland, Ohio, March 18. In the evening he spoke before the city organization of elementary school principals and supervisors. Dr. Bonser addressed the nurses and other health workers of New York City on "Principles of Supervision" at the Yorkville Health Center March 11.

Miss Sarah L. Patrick will teach industrial arts in the summer session of the Southern Branch of the University of California at Los Angeles.

Miss Elaine Dickinson, of Grand Rapids, Michigan, who is completing her work for the master's degree at Teachers College this session, will teach in the summer session at Hampton Institute. Miss Gertrude Beers, of the State Teachers College at Hyannis, Massachusetts, will also teach in the summer session at Hampton.

LINCOLN SCHOOL

Mr. Paul R. Hanna spoke on "Progressive Education" before the Fortnightly Club of the Bronx February 5, using motion pictures and films of the Lincoln School to illustrate his lecture. Mr. Hanna also addressed the Arithmetic Section of the New York Society for the Experimental Study of Education, March 16, on "Experimentation in Problem Solving," and on March 26 before the School and Home League of Woodbridge, New Jersey, on "The Parent in the School." In this talk Mr. Hanna described the possibilities of the school for developing the recreation and hobbies of parents in addition to the study of the child.

First Steps in Teaching Number, a new book by Dr. John R. Clark, Arthur Otis, and Caroline Hatton, has this

month come from the press of the World Book Company.

In February Dr. Clark attended the meeting of the Progressive Education Association in St. Louis.

Miss Lula Wright, with Professor Mary Reed of Teachers College, is conducting a course for colored public school teachers of Washington, D. C., in social studies for kindergarten and primary grades.

Miss Elmina Lucke addressed the Cosmopolitan Club of Toledo in January on the subject of the Briand-Kellogg Pact.

Miss Grace Keefe has contributed a chapter on "Special Problems in Girls' Camps" to a volume issued by the National Conference of Catholic Charities.

Mrs. E. H. Bliss spoke at Grace Congregational Church on "Activities in a Church School" March 6 and 13. Mrs. Bliss also served as a delegate at the installation of President Kiernan of Hunter College, representing President Small of Lake Erie College.

Dr. Fred Strickler gave a talk before the Industrial Arts Section of the New Jersey Vocational and Arts Association at Elizabeth, New Jersey, March 16.

Dr. Jesse H. Newlon visited Coatesville, Pennsylvania, March 21, and Cumberland, Maryland, March 22, addressing the teachers of those cities and conferring with their curriculum committees.

The staff of the Lincoln School held a supper-bridge-dance March 21, with swimming to finish off a most enjoyable evening.

Mrs. Franklin D. Roosevelt addressed the meeting of the Parent-Teacher Association March 26, on "Citizenship in the Schools." In her talk Mrs. Roosevelt emphasized the importance of the teacher's influence in the life of the child and the need for enhancing the teacher's position and surrounding the child with the elements of good citizenship from his earliest years.

NATURAL SCIENCES

Professor S. R. Powers spoke at a dinner meeting of the senior high school science teachers of Cleveland February 26. The topic of this presentation was an integration program of science teaching for the grades of the junior and senior high school. He spoke March 22 at one of the section meetings of the Junior High School Conference conducted by New York University, on the topic, "Research and the Junior High School Curriculum."

The first program of the newly organized Association for Research in Science Teaching was held in Cleveland February 25. The objective of this Association is to provide an outlet for expression by those individuals throughout the United States who are interested in research in science education and who are in positions of responsibility, and for the training of science teachers of elementary and secondary level and of teachers colleges. State and city supervisors are also eligible for membership. Eastern and central sections of the United States were well represented at the meeting. Professor Powers is secretary of this Association.

The Parker School District, Greenville, South Carolina, has just published in mimeograph form a handbook of Natural Science in the Elementary School. This handbook is the result of curriculum studies which have been made by a group of teachers working under the direction of Professor Thomas Alexander and Dr. Gerald S. Craig. Dr. Craig was in Syracuse February 5 and 6 and in Albany February 13 and 14, attending the meetings of the State Syllabus Committee in Elementary Science. Other members of the committee are Professor E. L. Palmer, Cornell University, and Mr. A. K. Getman, of the State Department of Education at Albany. Dr. Craig conferred March 11 with the teachers of the Rye Country Day School, Rye, New York, concerning the development of their program in Elementary Science.

The Horace Mann Course of Study in Elementary Science has been adopted by the Cleveland Heights School system.

NORMAL SCHOOL EDUCATION

Professor W. C. Bagley presented a paper on some of the possibilities in treating subject matter "professionally," at the meeting of the Ohio College Association April 6. He was also a speaker on the program of the Kentucky Education Association in Louisville April 17 to 20. The topics of his addresses before the several sessions of this Association were as follows: First general session, "Red Letter Lessons"; Second general session, "Outstanding Problems of Character Education"; Elementary section, "Adventures in Teaching"; College section, "What is Meant by Scholarship as a Basic Qualification for High School Teachers?" He spoke April 27 before the Philadelphia Teachers' Association.

Professor Bagley took part with Professor Harold Rugg in a joint discussion of the question, "Are the Aims and Objectives of Present-Day Education Best Advanced by the Activity Program?" at the meeting of the Hartford County Teachers' Association, Hartford, Connecticut, on May 8.

Professor Edward S. Evenden spent March 25 and 26 in Montgomery, Alabama, where he was called as a consultant on the curriculum study of higher institutions doing teacher-training work in Alabama, made by members of the staff of Peabody College. On his return from Montgomery, Professor Evenden was invited to visit Peabody College.

Professor Thomas Alexander is sailing on May 18 for Germany to be gone until the winter session, 1929–30. He will accompany a group of thirty in six weeks' school visitation in Germany beginning June 17. This tour will be conducted under the direction of the *Zentralinstitut für Erziehung und Unterricht* of Berlin with the coöperation of the Minister of Education. While abroad Professor Alexander will direct the studies of several students who are doing field work in Germany, and will assist in organizing at Mainz a conference on American education for German teachers. He will also be a delegate of the National Education Association to the World Federation of Education Associations meeting in Geneva in August.

As one phase of an experiment in laboratory instruction in professional education, two members of the course in normal school problems, Miss Lenora Johnson and Miss Mary J. Moss, left March 22 for the remainder of the

semester to do research work in critic teaching at the State Teachers College, Harrisonburg, Virginia. This experiment will be carried out under the direction of Professor Alexander.

The revised edition of Colvin and Bagley's *Human Behavior* was brought out by the Macmillan Company in March. This revision was made by Professor Bagley with the coöperation of Miss Marion Macdonald, teacher of psychology in the Jamaica Training School for Teachers. Miss Macdonald was associated with Professor Colvin as student and assistant at Brown University and at Teachers College. In 1926–27, she was associate in normal school education at Teachers College.

Dr. Ned H. Dearborn, who has been for the past three years Director of Teacher Training and Certification in the State Department of Education, Albany, New York, recently resigned his post to accept an appointment as Director of Extension in New York University. He will take up the duties of his new position in September, 1929.

Thirty members of the class in normal school problems visited the New Haven and New Britain Normal Schools on March 21 and 22 under the direction of Professor Alexander and Dr. Alonzo Myers, Director of Teacher Training for Connecticut.

On the occasion of his fifty-sixth birthday Professor Bagley was presented with an antique brass jardiniere and a tulip plant by the members of the Teacher Training League. The presentation was made at a birthday party in the Grace Dodge Room on March 15.

Under the auspices of the New York Society for the Experimental Study of Education, Professor Bagley took part with Professor William H. Kilpatrick in a joint discussion on "Prevailing Conceptions of School Discipline as Related to Character Development." The meeting was held in the Washington Irving High School February 16.

At the time of the installation of President J. O. Engleman of the Kent, Ohio, State Normal College, March 22 and 23, a new training school building was dedicated on the campus. Professor Bagley was asked to make the principal address on this occasion.

Professor Bagley gave an address March 9 on "Teacher Preparation for and in Service" before the Teacher Training Section of the Philadelphia Teachers Association. He also spoke before the North Carolina Negro Teachers Association at its annual meeting in Charlotte on March 29.

The following dissertations in the teacher-training field have recently come from the press: *The Professional Needs of Teachers of English,* by Willis B. Coale, and *Library Facilities of Teacher-Training Institutions,* by George W. Rosenlof. Both of these studies were published by the Bureau of Publications, Teachers College.

Miss Lucile Allard will offer courses in primary education at George Peabody College for Teachers during the coming summer session.

PHILOSOPHY OF EDUCATION

Professor William H. Kilpatrick addressed the New York Yearly Meeting

of the Society of Friends in New York April 1. He spoke April 2 before the Eastern Arts Association in conference in New York City. He also addressed the Schools Department of the Women's Club of Scranton, Pennsylvania, April 12 on "What Is Modern Education?" April 30 he was in Baltimore, Maryland, where he spoke twice to the teachers of the city public schools.

Professor Kilpatrick's *Education for a Changing Civilization* has recently been published in Japanese, having been translated by Mr. M. Nishimoto of the Women's College at Nara, Japan. Mr. Nishimoto, who was once a student in Teachers College, previously translated Dr. Kilpatrick's *Foundations of Method* into Japanese.

Letters from Dr. R. B. Raup indicate that he is having interesting experiences in Germany. He has recently been visiting schools and educators in various cities, among them Hamburg, Gottingen, Weimar, Jena, Leipzig, and Dresden. While he was in Jena he gave a lecture on "Psychology and Education in America."

Professor Kilpatrick spent the weekends of March 8 and 9 and 22 and 23 in Philadelphia under the auspices of the Parents' Council. On both Friday afternoons he addressed college groups in Bryn Mawr, on the Friday evenings he spoke in Cheltenham Township, and on the Saturday mornings held a seminar with elementary and kindergarten teachers in Philadelphia.

PHYSICAL EDUCATION

Dr. Jesse F. Williams has been elected to membership as one of the foreign members of the *Wissenshaftliche Gesellschaft für Körperliche Erziehung.* This society is composed of thirty members in Germany and ten outside Germany. Among the foreign members are Baron Pierre de Courbetin, who revived the Olympic games, Dr. W. A. Hill, the English physiologist, and Professor Lindhard, of Copenhagen.

Dr. Clifford L. Brownell, State Supervisor of Health and Physical Education of the State of Ohio, has been appointed assistant professor of physical education at Teachers College for the next academic year.

Dr. Harry A. Scott, professor of physical education, University of Oregon, has accepted the professorship of physical education at Rice Institute, Houston, Texas.

Dr. Frederick Rand Rogers addressed the Pemican Club on "Amateurism" March 12.

Miss Norma Schwendener, Mrs. Sheffield Blain, and Miss Marjorie Hillas attended the meeting of the Women College Directors' Society held in Philadelphia March 21 and 22.

Miss Josephine Petts, Director of Physical Education at Bryn Mawr, is offering her two courses in Individual Gymnastics next year at Teachers College. They will be given on Saturday mornings.

Professor Gertrude K. Colby is touring the Mediterranean this winter. She plans to be at the College next year and to continue her course in the problems of natural dancing.

RURAL EDUCATION

Professor Mabel Carney was elected president of the Department of Rural Education of the National Education Association at the meeting in Cleveland and as one of her first duties in this capacity has just completed the program of this division for the July meeting of the N.E.A. in Atlanta. This program consists of two general sessions and a luncheon meeting and has been built entirely around the general topic, "Rural Education in the South." Three phases of this general theme will be developed at the three sessions: (1) Some special achievements of rural education in the South; (2) Some distinctive contributions; and (3) Some fundamental needs for the new world order. All the speakers participating will be southerners and a good attendance from over the entire South is expected.

A fellowship dinner in honor of Dr. Warren H. Wilson was held in New York on Friday evening, February 8. All the rural organizations in the city coöperated in this occasion which was used to commemorate the report of the Roosevelt Commission on Country Life. Dr. Wilson, who was for ten years associate in Rural Sociology in Teachers College, received much credit for his outstanding work in the development of the country church and other phases of rural life. A rare German clock and a folio of letters of appreciation were presented to Dr. Wilson at this time, while the Rural Club of Teachers College, which attended as a group, presented a bouquet of pink roses to Mrs. Wilson.

The departments of Music and Rural Education coöperated recently in presenting a recital of Eskimo, Indian, and French-Canadian folk songs by Miss Julliette Gaultier, of Quebec. This concert was given by Miss Gaultier in costume and with appropriate scenery, and attracted one of the largest audiences ever assembled in Horace Mann auditorium. Miss Gaultier's work appealed to all, both for its musical and its educational qualities, and many of those present are already negotiating to see whether she cannot be placed on the programs of State Teachers Associations in the various states.

Professor Carney spent two days recently in speaking and visiting schools in Saginaw County, Michigan, where two Teachers College students, Miss Ottilia M. Frisch, the local County Superintendent, and Miss Mabel Morgan, Rural School Nurse, are conducting a most outstanding and creditable piece of work in health and rural school improvement.

Professor Fannie W. Dunn is on leave of absence this term, devoting full time to completing and writing up the experiment in rural school supervision which has been in operation for the last three years in Wilton, Conn.

SECONDARY EDUCATION

The members of the department of Secondary Education entertained the students of the major course and their wives at tea Sunday afternoon, March 24, at the home of Dr. and Mrs. Elbert K. Fretwell.

Professor F. W. Johnson spoke before the Association of Principals of Schools for Girls at Cleveland, February 22, on "Individualized Instruction."

Dr. and Mrs. Thomas H. Briggs returned on the Berengaria on March 27 after spending three months in Italy and France.

Mr. Hatcher Hughes, the well-known dramatist, addressed the Secondary Club and their guests on March 6. He spoke on "Current Productions on Broadway" and was very enthusiastically received by the large audience.

Professor P. M. Symonds spoke to the New York Society for the Experimental Study of Education at the March meeting on "Prognosis Tests and Modern Foreign Language." He also spoke February 16 to the New York City Gregg Shorthand Teachers Association on "Measurements in Commercial Subjects."

Professor Symonds is starting an investigation on the relationship of practice and instruction in the teaching of language habits. The instruction has been broken up into rules of usage, the use of models, the analysis of constructions, practice exercises, and various combinations of these elements.

The dissertation of Dr. W. H. Reals, entitled *A Study of the Summer High School,* has been recently published as No. 337 of the Teachers College Contributions to Education Series. Dr. Reals is now connected with the Department of Education, Washington University, St. Louis.

TEXTILES AND CLOTHING

Mme. T. Okuda, principal of the Okuda Girls Sewing High School, Tokyo, Japan, gave two interesting and unusual demonstrations of some phases of the clothing work done in her school before students of Textiles and Clothing March 8 and 9.

The students in the Textile and Clothing classes were entertained by members of the staff at a tea in the Women's Faculty Club March 1.

Through the courtesy of B. Altman and Company a fashion show was held in the Textile and Clothing laboratories on March 21.

A revised edition of *Clothing for Women* by Professor Laura I. Baldt will be published in the near future by the J. B. Lippincott Company.

VOCATIONAL GUIDANCE

Professor H. D. Kitson addressed the New Jersey Branch of the Society of Industrial Engineers at Newark, New Jersey, March 10, on "Job Analysis." Dr. Kitson addressed the Teaneck, New Jersey, Council of the Parent-Teachers Association on the subject of vocational guidance, March 22.

SUMMER NURSERY SCHOOL

The Child Development Institute of Teachers College will conduct a Summer Nursery School at 514 West 126th Street from July 8 to August 16, 1929.

The Nursery School will be in session five days a week, from 8.30 A.M. to 3 P.M. There will be a tuition and food charge of thirty-six dollars for the session, payable in advance. Applications are now being received for a limited number of normal, healthy children whose ages at the opening of the school range between fifteen months and three years nine months, and who are able to walk and eat solid food. The children accepted will be divided into two groups

according to age and social development.

Applications must be filed not later than May 15. Notice of acceptance will be given by May 31, 1929.

Requests for application blanks or for further information should be addressed to Mrs. Helen B. Torrens, Secretary of the Child Development Institute, 514 West 126th Street, New York City.

GRACE RUSSELL CONNOLLY

Grace Elfleda Russell Connolly, wife of Mr. Allen H. Connolly, Business Manager of Teachers College, died on Saturday morning, March 23, 1929. Services were held at the Presbyterian Church at Basking Ridge, New Jersey, Mr. Connolly's home, on Tuesday, March 26, where the burial took place.

BRANDER MATTHEWS

In the death of Professor Brander Matthews the academic and literary worlds have lost a distinguished and much loved man. His connection with Columbia began sixty years ago, when he entered as an undergraduate. After graduation he studied law and was admitted to the New York bar. He soon abandoned the law for literature; and for more than fifty years his industry, scholarship, and charm of expression have enriched our criticism of the theatre, of literature, and of life. His special interest was in the acted drama. No writer of our time has commented upon it with more of insight, wisdom, and ripe scholarship. Nor has any scholar excelled him in adding life and charm to academic subjects that are often made dull and prosaic.

His career as a teacher began with his appointment at Columbia in 1890. To the end of that career in 1927 he was one of the most interesting, stimulating, and beloved teachers in the University. A long line of students, undergraduates and graduates, have seen how the study of letters can be really humanistic; how an alert mind can open new vistas; how a gracious and urbane spirit can add a charm to scholarship.

It has been said of Professor Matthews that a list of his friends reads like a roll of honor of the great men of our day. He was the personal friend of many of the great authors and artists in England, France, and America. And yet, his gift for friendship was of so large and generous a sort, that he won and prized the friendliness of the young and self-distrustful student or instructor.

Those of us who knew him well find it hard to say which of his many sides we most admired: his wide and varied scholarship, his finished, urbane writing, his spontaneous, genial humor, his genuine pleasure in the fine art of conversation, or his simple kindliness.

FRANKLIN T. BAKER

TEACHERS COLLEGE IN THE NEWS

Newspapers throughout the country in March quoted Professor Harold F. Clark of Teachers College as declaring that college education was a detriment to earning ability in business pursuits after college. The newspaper accounts generalized Professor Clark's statement. What he actually said was that in the cases of many students, time spent at college was not justified on economic grounds. In the main, however, he was correctly quoted. His questioning of

the economic value of college education has resulted in widespread discussion and in scores of newspaper editorials. The substance of his point of view may be seen in the following excerpts from the *New York World* of March 24:

"The general report was that I declared college education a detriment to wage earning. It would have been far more correct to say I want to destroy the old myth that any kind of college education has the magic properties that will transform the individual into a high-powered wage-earner in whatever profession he might choose. America has jealously fostered the idea that four years of college training is the open sesame to economic progress, which has led to the most deplorable conditions. Thousands of misguided persons are being forced through four years of schooling which cripples them for jobs in which their abilities might have been utilized. They find that they are among a multitude struggling for a few already wretchedly overcrowded professions.

"The most widely quoted studies have compared the earnings of a group of people that went on to school with the earnings of a group that did not go to school so long. Because the earnings of the group that went on to school were larger, the authors of the studies concluded that schooling had some part in producing that result.

"What do we know about the ability of the two groups? What about the family connections, the business openings, the inherited wealth and other advantages of the group that went on to school as compared with an average group?

"A certain class, that had been out of one of our best colleges for ten years, had an average income of $12,000. We would doubtless be told that the college education had produced that result. Such an income is easy to obtain if your parents will give you securities to produce most of it.

"The boys who go to college or high school have larger incomes in later life than the boys who do not go. What of it? Boys who own private yachts and boys who go to expensive private schools also seem to have larger incomes than the average boy. There even seems to be evidence to show that boys who go to expensive summer resorts have larger incomes in later life than boys who work in the summer. Does this mean that boys should not work in the summer?

"If the people who have made the studies of wages and schooling wanted to know the effect of schooling, why didn't they equate the two groups in regard to other factors than schooling? This was not done. For this reason I do not see how we can accept the results of the studies.

"There are about 800,000 students in the United States in institutions of or above college grade. A large proportion, if not most, of these are preparing for the professions of law, medicine, engineering in all its branches, teaching, ministry, dentistry, architecture, journalism, and so on. The total employed in all these professions in America is about twice this 800,000.

"Wages (including salaries) are governed by the supply for service in relation to the demand. Is it a reasonable question to ask what will happen to professional salaries when the 800,000 goes to 1,000,000 and to 1,500,000 as it surely will? Even of the almost 4,000,000 high school students the attempt seems to be to try to get as many as possible in the professions and clerical occupations. Each day someone answers that schooling is worth eight dollars, ten dollars, or some other amount, depending upon the last article he has read, dealing with the money value of schooling.

"Are there any facts in the past that will enable us to guess more correctly what will happen from the pressure of these large numbers of people with advanced education trying to get into a limited number of positions? The fall in the salaries of clerks in the last hundred years is enlightening. A hundred years ago clerks were relatively highly paid. Since then there has been a tendency for the real wages of clerks to drop. 'There is a plethora of persons qualified to do clerical work and a

consequent tendency of their wages to fall rather than to rise,' says Taussig.

"You cannot train 100,000 people for 90,000 jobs without creating pressure to decrease the remuneration of the 90,000. You cannot have 800,000 people in college year after year and expect them to compete for 1,600,000 jobs without lowering salaries sooner or later. You cannot have the present percentage in high schools and expect them all to go into the 'higher callings.' If all tried to do so salaries would drop to unbelievable levels. The higher callings might even be more overcrowded than the field of unskilled labor is to-day. Educated people received higher wages, Prof. Edie pointed out, not because they were educated but because they were scarce. Increase the supply of educated people and you lower their individual wages.

"Contrary to the opinion that my investigation seems to have spread, I do not advise the curtailing of college training. I am for more free education, but there must be an advisory board to help the student so that he will not be groping against insurmountable obstacles."

Here are some of the editorial comments on the issue raised by Professor Clark:

From the *New York Sun,* March 12:

What Dr. Harold F. Clark of Teachers College said with regard to the effect of a college education upon earning power will be widely repeated, paraphrased, interpreted, and misinterpreted. That is the misfortune of those who say anything of great general interest. The qualified statement that "a college education is likely to make a man too pensive and hesitant for the task of money making when daring and courage are the prime necessities" fathers the bald headline, "Calls Schools Harmful."

When the subject matter of Dr. Clark's preliminary report reaches those interested it will have been compressed into "College Education Doesn't Pay." That will provoke a hundred debates, each departing far and wide from the original line of inquiry. One man may point to the nine college graduates in President Hoover's Cabinet; another may compare the earnings of college graduates with those of non-graduates; a third may say that there is a lot in the notion that the professions are overcrowded; a fourth will report that his son doesn't take college education very seriously.

If Dr. Clark is not too busy correcting misquotations and distortions of his original remarks he probably will agree that the more debate the better. One of the products of any widespread debate, it seems certain, will be the agreement that earning power is not the only or even the principal goal at college. Vague as are the notions of some undergraduates, few of them would admit that the sole motive that prompted them to seek a higher education was the thought that it could be cashed in. College education has had an economic value for most graduates of the past, but everybody knows college men who have had slight financial success but have counted other riches that education made available to them more than a recompense. Changing conditions of the future may reduce the economic value of an education, as Dr. Clark seems to believe possible, but they will not have much effect on the intangible values of education. Those will continue to depend upon the individual.

From the *New York Herald-Tribune,* March 14:

Dr. Harold F. Clark says that college training does not pay. Dr. Someone Else says that Dr. Clark is a materialist. Dr. Clark replies that to talk about the moral value of education is to "becloud the real issue," since young people go to college to fit themselves for a lifework. And still another doctor comes forward and reasserts that college-trained men really do earn more than others.

When doctors disagree, mere newspapermen may venture to lay down the law. And we suggest that most young people go to college to-day not because they or their parents yearn for moral training or because they think it pays, but because it seems to be the thing to

do. This is the one country in the world where every boy and every girl, butcher's son and preacher's daughter alike, aspire to that curious title, Bachelor of Arts. They do not know why, any more than they know why they played mah jong a few years ago, or worked cross word puzzles, or why they wear toques and derby hats this year. It's the fashion; it's in the air. His prospective employer may or may not be interested in his college training, but every man jack from Tallahassee to Spokane knows that he is at a social loss in his home town if he has not been to college, and the girls feel an increasing and similar urge for higher education. The result is that we have more boys and girls in American colleges to-day than we had in high school in the 1890's, and if that did not affect the economic value of a parchment degree, there would be need for another learned investigation.

The doctors might well pause to inquire what is cause and what effect. When a million young people stroll under the academic elms each year, instead of half a million, it is fairly obvious that the resultant degree will lose something of its rarity value. It does not prove in the least that the time spent in college is lost, or that any one of the million individuals has lost in earning power because he went in for culture at the dear old alma mater.

Of course, it does demonstrate what should have been evident before, that the function of the American college has mightily changed. It is no longer a cloister for the training of professional men, not even a country club for the children of the rich; it has become a part of the conventional training for American life. As such, doubtless, it needs considerable re-study and re-shaping. Things are happening to the American social organism of which the pre-war generation never dreamed, and the colleges will have to take account of them. But that is a part of another and larger question. The boys and girls will continue to pour into college until a substitute is developed which is not only more profitable but more alluring to the flapper generation, and all the learned demonstrations of which all the research foundations are capable will not stop them.

From the *New York World,* March 11:

Probably the snag that tripped Dr. Clark is the notion which he expresses, that "education is just as much a commodity as wheat and must be governed by the same laws of economics." That is wrong. Education is not a commodity. In asserting that it is, Dr. Clark may be thinking not of education at all but of college degrees. Degrees, it may be admitted, are commodities: they cost so much in time and money; they may be exchanged for so much in jobs, security, and prestige. In certain of our professions, notably law, medicine, and teaching, there is practically no work to be had without them; conversely, there is always a chance of work with them. There is hardly a lawyer so dull that he cannot cross t's for some insurance company, or a doctor so unskilled that he cannot wrap pills for some clinic, or a teacher so uninteresting that he cannot teach French in some ladies' seminary—provided only that he can exhibit the requisite LL.B., M.D., or Ph.D. And in respect to such men there will always be competition for places, and the pay will be desperately small.

From the *New York Times,* March 12:

Has not Dr. Clark imputed too low a motive to the hundreds of thousands of college students, and to their parents who make it possible for them to go to college? Is it merely "under the illusion of increasing their earning power" that they "march off to college every year"? This is not the motive—at any rate, the prime motive—with many of these youths. The young man whose first ambition is to increase his earning power is not likely to be willing, even at a parent's expense, to spend four or seven years in preparation and then several more years in beginning to earn in a

business career or in building up a practice.

Heywood Broun in his column in the *New York Telegram,* March 11, said:

Dr. Clark, of Teachers College, has reported that a college education at the present day does not yield dividends. This estimate is based upon a long and careful survey. Such an inquiry may well serve a useful purpose. It is time to call public attention to the fact that the professions are overcrowded. Why on earth should any happy land need so many lawyers?

But after admitting the benefits which may accrue from the investigation it is well to point out that the success or failure of modern education must not be judged wholly by a mere process of arithmetic. It is ridiculous to class every person of moderate means, or less, as one who has been marred by his years at college. I have always supposed that the chief purpose of higher education was to fit the individual to lead a fuller and happier life. I don't see how that can be measured in terms of dollars. There are thousands of citizens more worthy of national regard than Jack Dempsey, and several of them make quite a little less money.

Elsie McCormick, in her column in the *New York World,* March 20, said:

The news that a college education can be and often is a handicap in wage earning, no doubt strikes like a dirge on a large number of American ears.

For a long time now we have been stimulated by graphs showing the beautiful skylark rise in income that results from each additional year spent at high school or college. To try to accustom ourselves to any other belief is almost as upsetting as if we had been left suddenly without the germ theory or with the realization that Mr. Voliva is right.

This announcement regarding the impoverishing effects of a diploma was made some days ago by Dr. Harold Florian Clark, professor of education at Columbia University. He did not turn magician for the moment and take the idea out of his hat; it happens to be the result of a long, patient study of payrolls, many interviews with employers, and attention to the statistical wails sent up by numerous college graduates.

The trouble lies in the vast surplus of students bent on pushing into a limited number of jobs. There are about 800,000 undergraduates in the United States preparing for professions that have no more than 1,600,000 members all told.

Every newspaper writer who has watched the multitude of bright-eyed larvæ pouring out of a school of journalism has suffered from a cold chill and gone home to take aspirin. Similar goose flesh is produced when dentists, engineers, or architects visit their alma maters.

There are, besides, some 4,000,000 high school students in the land, practically any one of whom would emit Jovian laughter if offered a job involving overalls and contact with greasy surroundings.

What is more, there is every indication that the condition will get worse. Judging from the present rate of growth, our universities will soon have a million students; a few years later there will be a million and a half. If all these people and all the high school students try to go into white collar callings, salaries, says Dr. Clark, will drop to "unbelievable levels." There are some professors, teachers, and ministers who think that salaries are already there.

Just to help college graduates digest their breakfasts better, I might refer to the gloom-wrapped prophecies of Dr. Walter B. Pitkin. Our life, he said, is becoming so mechanized and so efficiently organized that the day will dawn when a few hundred thousand great minds can run the works. The other brainy inhabitants will either starve or learn to pull levers.

Apparently, we are heading straight for the development of an intellectual proletariat. The time may come when the slums of the city are inhabited by auditors, teachers, architects, and engi-

neers; when the lingerie flapping on tenement fire escapes will belong to A.B.'s and Ph.D.'s; when a benevolent bricklayer's wife will bring to the shivering law clerk's child the doll and oranges that she had asked Santa to send her on Christmas.

If you think these are the visions of a newspaper person made daft for the moment by the Florida sunshine, let me remark that the fantastic picture is already in the making. The New York Charities Organization Society is finding that a growing number of its appeals come from people who wear white collars and work amid erasers, lily cups, and adding machines. Last year the national group that made the largest number of calls for aid consisted of native-born Americans.

From the *New York Post,* March 12:

Professor Clark's findings are hardly satisfying. The one fact that we have to go on in regard to the comparative earning power of the educated and the non-educated is that the former earn more money. Professor Clark himself admits this. But he brushes it aside by stating that education is not responsible for this result. It is because "that type of person," by which we take him to mean those in the higher salaries group, is going to college.

From the *New York Evening Wall Street Journal,* March 14:

To-day every alma mater worthy of its ivy shelters a school of business, by that or any other name. Nor do all of these wholly belie their titles. College graduates now have much less to unlearn before they are worth their keep than they were once supposed to have. They are no longer impressed with the vista of years to elapse before they are really fit for business and in a surprising number of cases their new attitude proves correct.

Already the standard gibe that the college graduate who elects to "go into business" automatically becomes a bond salesman has lost its point.

From the *New York Graphic,* March 15:

One fault with college education is that it steals the most valuable years of one's life.

Instead of specializing, as should be done at this time, one is collecting a vast array of information which frequently serves no practical purpose in preparing one for the special life work.

Let us hope that Dr. Clark continues his investigation a sufficient period to give us dependable information on this very important subject.

From the *Lowell* (Mass.) *Leader,* March 12:

Dr. Clark, however, does suggest a serious problem when he says that the educational system cannot afford to be expanded indefinitely unless there is a corresponding expansion in the number of occupations to which it leads. He is not alone in feeling that the colleges, no less than the professions, are becoming overcrowded.

Arthur Brisbane in his syndicated column:

Dr. H. F. Clark, professor of education at Teachers College, says college education interferes with a boy's chance to earn a living. It sends him into professions overcrowded and robs him of "daring" necessary to success.

That will comfort parents unable to send boys or girls to colleges. The important thing for a human being is to think for himself and to take his mental mainspring, unbroken, into the world fight.

Any system of education, religion, or society that forbids youth to think for itself is a handicap.

From the *Columbia* (University) *Spectator:*

Dr. Harold F. Clark of Teachers College recently published a report in which he pointed out that a college education did not necessarily increase wage-earn-

ing ability, and that in many cases it could be a positive detriment. He did not deny that four years spent in college can be extremely useful and beneficial, but, it seemed to us, his chief purpose was to destroy the fallacious belief that a college education would guarantee success in the business world.

Many prominent industrialists and educators have challenged Dr. Clark's findings, but all of them state their belief that a college education will be of advantage—"provided he has the other necessary qualities." That, it seems to us, is just the point. Dr. Clark does not deny that a man having all the necessary qualities for success will be more likely to succeed if he has spent four years in college, because of the enlarged viewpoint which will come to him there.

President John Grier Hibben, of Princeton, answers Dr. Clark's report by quoting statistics of the wage earnings of various Princeton classes. He says that the average earned incomes of the members of the Class of 1915 were $805 their first year out of college, $2,454 their fifth year out, and $7,503 in their tenth year. But Dr. Hibben makes no mention of what these men might have done without their education, nor of the value of their "connections," without which many a college man would never rise from the great middle class.

From the *Bridgeport* (Conn.) *Telegram,* March 13:

A college education is a pre-requisite to a professional career to-day, but if the professions are to be as grossly overcrowded as Professor Clark feels they are, the dreams of affluence must vanish.

Why not get back to the safe fundamental that a college education is worthwhile for its cultural values? Those who pursue it only for its cash aspects are likely to be disappointed, and that disappointment is going to be more certain and more bitter from year to year as the professions grow more and more overcrowded with incompetent practitioners of law, medicine, and engineering.

From the *Manchester* (N. H.) *Union,* March 13:

Granting that every young person capable of it should have high school training, education beyond that point is a matter of preparation for the occupation one intends to follow, and in many instances that preparation can be obtained only in the occupation itself.

From the *New Britain* (Conn.) *Herald,* March 11:

It is gratifying, however, to see a candid appraisal of the aims of education. Too much propaganda has been allowed to befuddle the minds of the public. Regardless of whether one agrees with the thesis of this preliminary report, it opens a vista of more thorough analysis, provoking thought into channels heretofore unexplored.

From the *Utica* (N. Y.) *Press,* March 15:

Dr. Clark's conclusion that the more general education is the less its earning power will be, seems logical enough since economic law must apply in this field as in every other. Still everything he asserts is not absolutely proved even if his argument is plausible nor does he finally refute those who hold conflicting and more conventional views. There are few or no statistics upon which either side can base its contentions.

From the *Philadelphia* (Pa.) *Public Ledger,* March 17:

It is not necessary to go all the way with the president of Purdue University when he tells the National Education Association that "we should have college-trained milkmen as well as doctors," to be encouragingly impressed by the increasing demand in a wide range of occupations for young men who have acquired a liberal education as distinguished from the technical training so essential for certain callings. Within a few weeks representatives of several of the largest

corporations in the country will be visiting the big universities in accordance with their custom, to obtain some of the most promising members of the graduating classes for their employ. The reference is not to engineers and chemists, who seem to slip automatically into their life work, but to fledgling bachelors of arts, whose general education is regarded as having made them fitted for future positions of leadership.

From the *Elizabeth* (N. J.) *Journal,* March 13, 1929:

He faces the task of explaining why it is that so many great business concerns are favoring college men and women in employing help.

(Dr. Clark would say this is easily explained: that these concerns are seeking employees of ability, and that boys and girls of ability are in college. It is not the college that creates the ability, necessarily. EDITOR.)

From the *Newark* (N. J.) *News,* March 15:

This report may have a good effect, if it breaks down the idea that there are only certain occupations befitting a college man's or woman's dignity. The idea is not as potent as it once was. All sorts of businesses are appealing for collegians, including some which have been much neglected in the past. The great department stores are offering opportunities to learn the art of merchandising. Hotels are looking for men whom they despair of finding unless the colleges can provide them. These are merely illustrations of the way a new generation offers new opportunities, and there is no reason, except obsolete tradition, why collegians should not enter practically any walk of life. It is no mere jest to suggest college-trained plumbers and ironworkers and what not. When this was an agricultural country college-trained farmers were not unusual. In an industrial era, college-trained industrialists might well be just as common.

From the *Troy* (N. Y.) *Record,* March 19:

Despite the weight of figures, there is something to be said in argument against the statement that college training is an actual hindrance in developing the faculty to make money. In regard to professional life, which was the center of Professor Clark's attack, it is true that the per capita salary is not so high as it once was, due to increased competition. Nevertheless, it is also true that those professions remain closed entirely to the untrained man, rendering his earning power absolutely nothing . . . and that figure has not increased a penny in twenty years.

From the *Lowell* (Mass.), *Courier-Citizen,* March 13:

Fear that very many of the host of young people now in college will not be able to find work in a civilization which increasingly depends on machinery rather than men, has been expressed by Harold F. Clark, professor of education at Teachers College. This dread has been pronounced groundless by another professor of education in the same institution, William C. Bagley, who asserts that never before were there so many openings for "persons on the higher intellectual level." Both the pessimist and the optimist, it is probable, are right. The ever increasing mechanical production of wealth creates opportunities for well-trained men and women who are resourceful, energetic, and high-principled. Such command better pay than average collegians of a generation ago could possibly aspire to. Medium and low-grade intelligence, however, and even the higher mentalities if lacking in coöperative qualities, have a very hard time to get placed advantageously nowadays, even though they may be able to produce a sheepskin. Ours is a good age for the better minds and a desperately rough one for those who have failed to inherit either (1) property guarded by trusteeship against dissipation, or (2) personality capable of ready adjustment to existing social conditions.

From the *Rome* (N. Y.) *Sentinel,* March 11:

Thus far, Dr. Clark has said little that we have not often heard before from the lips of men who have attained to fortune without college training or from persons who have been content to take account of those about them who have and who have not been college trained. All of us know college graduates who have made no mark in the world and have even experienced difficulty in providing for their families. Only we cannot always tell how much spiritual contentment of mind they may have gained through their education—an education, perhaps, that has unfitted them for dealing with the actualities of life.

From the *Detroit* (Mich.), *Free Press,* March 14:

With all due respect to the professor, we venture to doubt that the question can be settled by the academic method. Anyhow, a large percentage of the "old boys" who climbed the ladder of business success, without the assistance of four years on the campus, are anxious that their sons shall go to college. They would hardly feel that way about it if they thought a college education would be a distinct detriment to the earning capacity of their young hopefuls.

From the *Springfield* (Mass.) *Republican,* March 13:

Whatever may be the opinions held respecting Dr. Clark's educational philosophy, his warning to those who seek to go to college because they believe that it will mean more money in their pay envelopes, or more stocks and bonds in their strong boxes, should encourage consideration of what, after all, education is for.

From the *McKeesport* (Pa.) *News,* March 16:

As to Dr. Clark's claim that persons who are getting high wages to-day would have made them without the aid of education, that is a contention hard to prove. It is true that many who did not have the benefit of a college education have reached high places in the financial world, but who can say that even greater heights would not have been reached by these individuals had they possessed college training?

There comes to mind the words of a college professor who was wont to declare that sending a boy or girl to college would not give them brains. That is true, and it is just as true that a college education will not give a man or woman money-making power, if it is not backed by brain power; but just the same the general opinion will remain, despite Dr. Clark, that university training is of tremendous help in getting along in the world, financially and otherwise.

From the *Columbus* (Ohio) *Dispatch,* March 16:

College education needs no defense against such attacks. A thorough examination of the alumni lists of any of our colleges of reputable standing will show that graduates—and even the most scholarly among them—are able to take successful care of themselves in the realm of money making.

From the *Huntington* (W. Va.) *Herald-Dispatch,* March 17:

By giving thought and space to a discussion of Dr. Clark's views, we do not want to be understood as trying to discourage higher education. We merely offer them as coming from one of the foremost educators in America to-day and because they reflect more daring and frankness than other educational leaders, bewildered by the same problem, choose to exercise in approaching it.

His theory strikes at the very heart of the problem of overcrowded colleges and universities which has caused grave concern for our educators in recent years. Such institutions are being taxed beyond their capacities and the public, which must support them, is hard pressed to find means of enlarging their facilities

and service. And if that problem were to be solved, it would give rise to a still greater one—how the tremendous output of these institutions is to be absorbed by the economic machinery of the country.

From the *Providence* (R. I.) *News*, March 14:

If the professor's remarks have the happy result of convincing the public that colleges do not exist in order to produce millionaires, it is possible that we shall see a wider and more welcome appreciation of what it is for which they do, or should, exist. That is the contriving of a more cultivated and enlightened world devoted to the highest ideals and standards of which the human mind is capable.

From the *Nashville* (Tenn.) *Tennessean*, March 14:

Doctor Harold F. Clark of Columbia University may be correct in his assertion that college education is a genuine handicap to successful wage earning, yet his conclusions do not prove that an education is without value or worth less than the cost.

Unquestionably, we have stressed too much the value in money of an education. In our endeavors to arouse public opinion to the support of educational enterprises we have been inclined to over-emphasize the economic phases of education. We have done this largely because we felt we had to talk the language that the people could understand. It was easier to evaluate education in dollars and cents than it was to convince an unsympathetic public of the worth of its imponderables.

Going to college for the sole purpose of training to make money is proving and has proved very disappointing to thousands of young people who have done it. They have been deceived and deluded by the oft repeated declarations that an education would of itself tremendously increase their earning power. Of course, this is not necessarily the case. Unfortunately, the world has held up as failures those scholarly men whose earning powers do not compare with the earning powers of some captain of industry or financial wizard who has achieved success notwithstanding the lack of an education.

This is of course an unfair and wholly unjustified method of appraising the value of education. The biggest values in college education come from enrichment of the student's life and a higher appreciation of human values quite aside from a facility for accumulating riches. These are the things which really justify an education.

From the *New London* (Conn.) *Day*, March 12:

If the Clark report finds wide favor and credence, then we may expect colleges to fall off in attendance. Don't worry about that. We probably have too many young men in college as it is. We are at present trying to make too many silk purses out of too many sow's ears.

Take more boys and girls out of college, and you leave the colleges, with the huge endowments and large faculties, the better equipped to serve those who attend from a downright thirst for abstract learning and a genuine desire to serve civilization.

Even if this detracts from attendance at professional schools, we should not be sorrowful. Dr. Clark has pointed out that the professional schools are overcrowded; that we have probably ten per cent more doctors, lawyers, journalists, dentists and what not than we need. The result is a glutted market for a demand that shouldn't be over-encouraged anyhow.

All these opinions call for a remedy, of course. Dr. Clark doesn't go into that so much. Indeed, he might be embarrassed if he did, for the primary remedy is that of making matriculation at any college or university more difficult. In application of that remedy, not more than half a dozen leading colleges are in any way fulfilling either their duty to their students or their duty to the public.

From the *New Haven* (Conn.) *Journal-Courier,* March 15:

Doubtless the fact that none of Dr. Clark's critics have ever known a college graduate to starve to death or to be reduced to the grosser forms of panhandling explains their attacks upon him. But that a college training is not needful to great worldly success—that a Henry Ford or a James J. Davis, a Babe Ruth or a Jack Dempsey can get on very well without it, is a truism too trite to need emphasis. What Dr. Clark complains of is the interminable hordes of would-be professional folk that the colleges relentlessly grind out—thousands of new doctors, lawyers, teachers, journalists, thousands of dentists, thousands of preachers. Even if their several crafts were not already crowded to economic suffocation these people could not attain the gaudier reaches of material success for the simple reason that such success is not resident in the professions.

The quickest possible way to prove this is to measure men of parallel intellect, parallel integrity, parallel character, initiative—all these qualities that fuse to make that indefinable force we call ability—in business on the one hand, and in the professions on the other. The first-rate educator gets $25,000 as the head of a university; his cousin, of equal worth in business, a couple of million or so. The good lawyer goes to the Supreme Court bench at $20,000 or stays in private practice at two or three hundred thousand, while his commercial brother buys a dozen automobiles to his one.

Dr. Clark has simply stated the obvious; college takes time, college takes money, and in the long run the professional men whom the colleges turn out do not gather in the monetary sheaves in anything like the abundance of their equally able brothers who started in business at eighteen and worked up. To be sure, many college men are conspicuous successes in business; but, says Dr. Clark, they would have been anyhow, college or no college. Thus the core, the essence, the whole spirit of this Columbia professor's world-shaking discovery is that there is no magic in education as education—that a man's success is determined by what he is, and that all the education in the world, from Yale to Heidelberg, to Cambridge, to the Sorbonne, cannot make a moron into a master mind, legal, medical, pedagogical or commercial. Surely this discovery is nothing for any person to get excited about.

From the *Dayton* (Ohio) *Journal,* March 16:

The estimable professor does not paint a very attractive picture for the future college graduate. And, it must be admitted, there is a great deal of truth in what he says. But the potency of the conclusions is diminished somewhat by their failure to take into account changed and changing conditions. These put more color into the picture.

New arts, industries, and callings are springing into life more often than they formerly did when the world knew a great deal less and these will continue to increase the number of places open for people with college educations. Radio is still far from being complete either as a science or an industry. The airplane is just coming into popularity twenty-five years after it was given to man by the Wright brothers. Every day great changes are taking place in both and not infrequently something radically new is announced. All these things mean more posts for trained minds as well as for trained hands.

Finally, more and more people are being released for service to others in works above the menial and purely mechanical. There was a time when a person had only his time and labor to dispose of. To-day an almost countless variety of services are rendered in which neither time nor labor is the chief factor. These services will increase as the standard of living increases.

The time when a college education in the possession of an alert youth bent upon getting ahead will be wasted, is reasonably far ahead. It may come, but not nearly so soon as Dr. Clark thinks and suggests in his report.

From the *Providence* (R. I.) *Bulletin*, March 14:

In this seeming radicalism there is reason for rejoicing. Dr. Clark in his diagnosis has consciously, maybe maliciously, put his finger upon our well-known national weakness.

We are coming to a great deal that this enterprising investigator, whose courage and daring do not seem to have been daunted by education, has touched upon. He has brought down wrath upon himself in a controversy which should prove of great benefit to all of us.

From the *Minneapolis* (Minn.) *Tribune*, March 17:

Unquestionably, he points to a condition which needs rectifying. The notion that anyone who is possessed of a formal education is immediately endowed with a Midas touch has persisted so long that it needs to be submitted, on occasions, to rather brutal mauling. The fact should be driven home that the professional market can be glutted with lawyers just about as easily and just about as disastrously as the labor market can be glutted with ditch diggers. The high school student who contemplates spending four or five or six years in college should at least be apprised of this fact so that he may reach a decision in the matter undeceived by any of the current fallacies concerning the worthwhileness of a formal education. But the idea of a state limitation on professional students seems highly ridiculous. The situation which Dr. Clark deplores will ultimately right itself, and there are even now indications that a reaction is already setting in against the system of mass production which has been in vogue on the university campuses since the war.

From the *Oswego* (N. Y.) *Palladium-Times*, March 20:

If Dr. Clark's statistics withstand careful scrutiny, one of our most imposing idols is due to be shattered.

From the *Easton* (Pa.) *Express*, March 19:

Dr. Clark's study is particularly novel in view of his position in educational circles. A considerable part of his conclusions will no doubt be discarded by educators, but his candid attack on educational objectives should result in much profitable research.

From the *Waterbury* (Conn.) *Republican*, March 29:

If the educators who rushed into print in the early part of this month to denounce Dr. Harold F. Clark's preliminary report on the economic effects of education had withheld their fire until they had been able to study the full text, their comment would have been much milder. Dr. Clark did say most of the things he was credited with saying. He did declare that his survey showed that in many instances, college training not only does not increase an individual's earning capacity but actually decreases it. He did say that "our preliminary results show that the longer one goes to school above a certain minimum the less his income." He did say that the tendency of college youth to go into a narrow range of occupations is likely to force salaries in those fields to unbelievably low levels.

But Dr. Clark did not say or imply, as he is generally credited with having done, that economic grounds are the only ones, or even the chief ones, on which education can be defended, or that as a result of his studies he is prepared to recommend that the number of persons enjoying the benefits of higher education ought to be reduced. What he did say is that it is necessary to distinguish between education that is an element of production —that is, which fits the student for some definite occupation—and that which is an element of consumption—that is, which is purely cultural. Far from urging less education, Dr. Clark pleads for more of it. As he says, "A smaller amount of education supplied to the people in general would doubtless increase the value of the education to people who

had education. A large amount of education would doubtless be of greater utility to the people as a whole." The only inference possible to draw from that is that a nation dedicated to the principle of the greatest good for the greatest number, as the United States is, has no choice but to diffuse education as widely as possible among its citizenry.

This does not mean that all the children of all the people should be given the same kind of training. The needs of society and the aptitude of the individual should determine the sort of schooling he is to receive. That this method is not generally used at present is blamed by Dr. Clark for the unfortunate economic facts to which his report calls attention. "Too many people are trained for some occupations," he says, "and too few for others."

This is a situation which the law of supply and demand could remedy in time, no doubt. But it would be against sound public policy to permit it to continue until that law got in its ruthless work. Dr. Clark's investigations should form a starting point for much research work covering the whole field of education and its relation to a democratic state. The solution of the problem to which he directs attention may even involve the gradual bringing about of a revolutionary change in the popular attitude toward various kinds of work. Possibly a combination of drastic revisions in our educational system and glorification of occupations which college men and women now instinctively shun may be indicated.

Garrett P. Serviss in his syndicated column wrote:

"The boy of ability," says Dr. Clark, "will get to his destination quite regardless of a college education."

In that statement he is certainly borne out by the experience of this country. Our history is full of examples of men who have forged to the front and become leaders of the greatest business enterprises, without having had a college education. Many of them have had, and apparently have needed, to start them, no more than the old "Three R's" of the common school, the rest of their education being acquired during the performance of their life tasks. . . . It would not be a bad thing if the public could free itself from the superstition that a college is able to turn a quite ordinary first comer into an able lawyer, or doctor, or preacher, or artist, or writer, or journalist, or any other sort of professional man by virtue of a magic touch. No institution of learning can make a present of mental ability to anybody.

From the *Baltimore Sun,* March 11:

A chill breath of prophecy blows from the findings of Dr. H. F. Clark. . . . The colleges in four years will graduate enough young men to take the place of half the professionals now in active practice, and the college enrollments grow. A surplus of applicants will appear and competition will force down the emoluments. A bear market for brains impends.

ALUMNI ACTIVITIES

TEACHERS COLLEGE ALUMNI ASSOCIATION OFFICERS

President: Dr. J. Cayce Morrison, Assistant Commissioner for Elementary Education, New York State Department of Education, Albany, N. Y.

First Vice-President: Dr. Fannie W. Dunn, Assistant Professor of Education, Teachers College.

Second Vice-President: Dr. Velda C. Bamesberger, Director of Elementary Education, Board of Education, Toledo, Ohio.

Recording Secretary: Miss Mary Lewis, Teacher in Horace Mann School, Teachers College, New York City.

Corresponding Secretary: Miss Katherine I. Sherwin, Executive Secretary of Student Organizations, Teachers College.

Treasurer: Mr. Clyde R. Miller, Director, Bureau of Educational Service, Teachers College.

Members-at-Large: Mr. Frank Morey, Supervising Principal of Schools, Camp Hill, Pa.

Miss Effie Taylor, Professor of Psychiatric Nursing, School of Nursing, Yale University, New Haven, Conn.

Miss Marion Sheridan, 711 Orange Street, New Haven, Conn.

Alumni Trustees:

Miss Mercy J. Hayes, 301 American State Bank Building, Detroit, Mich.

Dean M. G. Neale, School of Education, University of Missouri, Columbia, Mo.

Alumni Office: Teachers College, 525 West 120th Street, New York City.

Address all communications to Katherine I. Sherwin,
Corresponding Secretary, Teachers College, New York City.

SECRETARY-TREASURERS OF TEACHERS COLLEGE CLUBS

Africa—South Africa Club
Dr. E. G. Malherbe
University of Cape Town
Cape Town, South Africa

Alabama—State Club
Miss Agnes Harris
Auburn, Ala.

Arizona—State Club
Miss Minnie Porter
% Board of Education
Phoenix, Ariz.

Arkansas—State Club
Mr. H. G. Hotz
University of Arkansas
Fayetteville, Ark.

CALIFORNIA—SOUTHERN CLUB
Miss Lela W. Aultman
6811 Leland Way
Hollywood, Calif.

CHINA—EAST CHINA CLUB
Mrs. Nita M. Stallings
Soochow, Ku, China

CONNECTICUT—NEW HAVEN CLUB
Miss Frances Terrill
100 Whalley Avenue
New Haven, Conn.

CONNECTICUT—STATE CLUB
Mrs. A. W. Jennings
State Normal School
New Haven, Conn.

GEORGIA—ATLANTA CLUB
Miss Isabel Dew
Head, Mathematics Department
Fulton High School
Atlanta, Ga.

GEORGIA—STATE CLUB
Miss Leila Bunce
Director, Home Economics
Fulton High School
Atlanta, Ga.

INDIANA—SOUTH BEND CLUB
Miss Mamie E. Kerner
115 North William Street
South Bend, Ind.

INDIANA—STATE CLUB
Miss Margaret Gillum
State College for Teachers
Terre Haute, Ind.

KANSAS—WICHITA CLUB
Miss Christina Rosendale
Wichita High School
Wichita, Kan.

LOUISIANA—STATE CLUB
Prof. Homer L. Garrett
Louisiana State University
Baton Rouge, La.

MAINE—STATE CLUB
Mr. Frank D. Rowe
Supt. of Schools
Warren, Me.

MARYLAND—STATE CLUB
Miss Edna M. Marshall
Director of Training
Maryland State Normal School
Salisbury, Md.

MICHIGAN—ANN ARBOR CLUB
Secretaries
Mrs. Clifford Woody
1607 Granger
Ann Arbor, Mich.
and
Miss Mildred Robinson
State Teachers College
Ypsilanti, Mich.

MICHIGAN—BATTLE CREEK CLUB
Mrs. D. R. Dudley
Asst. Superintendent of Schools
Battle Creek, Mich.

MICHIGAN—DETROIT CLUB
Recording Secretary
Miss Zaide L. Voorheis
Northern High School
Detroit, Mich.
Treasurer
Miss Jessie Wedin
Detroit, Mich.

MICHIGAN—GRAND RAPIDS CLUB
Miss Marie de Dreu
229 Sweet Street, N. E.
Grand Rapids, Mich.

MICHIGAN—NORTHERN MICHIGAN CLUB
Mr. Sidney Herring
401 Front Street
Marquette, Mich.

MINNESOTA—STATE CLUB
Miss Anna Sand
Principal Thos. Lowry School
Minneapolis, Minn.

MISSISSIPPI—STATE CLUB
Mr. Joseph E. Gibson
McComb, Miss.

MISSOURI—KANSAS CITY CLUB
Miss Madeleine Farley
805 East 30th St.
Kansas City, Mo.

MISSOURI—ST. LOUIS CLUB
Mr. H. P. Stellwagen
Board of Education
St. Louis, Mo.

MISSOURI—STATE CLUB
Miss Clara Evans
E. C. White School
Kansas City, Mo.

NEW YORK—BUFFALO CLUB
Miss Agnes McCarthy
Technical High School
Buffalo, N. Y.

NORTH CAROLINA—STATE CLUB
Mr. L. R. Johnson
111 Steele Street
High Point, N. C.

OHIO—AKRON CLUB
Miss Clara Barker
614 West Market Street
Akron, O.

OHIO—ATHENS CLUB
Mrs. E. B. Smith
University of Ohio
Athens, O.

OHIO—CINCINNATI CLUB
Mr. E. D. Roberts
Asst. Superintendent of Schools
Cincinnati, O.

OHIO—CLEVELAND CLUB
Secretary
Miss Liva Biszantz
1131 Clifton Blvd.
Cleveland, O.

Treasurer
Mr. Frank J. Bush
Detroit Jr. High School
Detroit at West 49th
Cleveland, O.

OHIO—KENT CLUB
Miss Isabelle Hazen
Franklin Apartments
Kent, O.

OHIO—TOLEDO CLUB
Miss Grace Gordon
Riverside School
Toledo, O.

OKLAHOMA—STATE CLUB
Miss Lotta Allen Meacham
Oklahoma City, Okla.

PENNSYLVANIA—HARRISBURG CLUB
Miss Anna P. Harris
1009 N. 16th Street
Harrisburg, Pa.

PENNSYLVANIA—PHILADELPHIA CLUB
Miss Florence Turner
Drexel Institute
Philadelphia, Pa.

PHILIPPINE ISLANDS
Mr. Gabino Tabuñar
Bureau of Education
Division of Bataugas, P. I.

TEXAS—STATE CLUB
Miss Clara Mays, Librarian
Mark Twain Junior School
San Antonio, Texas

VERMONT—STATE CLUB
Miss Mary B. Sullivan
Normal School
Castleton, Vt.

VIRGINIA—STATE CLUB
Mr. C. B. Givens
4010 West Street
Richmond, Va.

WISCONSIN—STATE CLUB
Miss Josephine Maloney
2914 Cedar Street
Milwaukee, Wis.

PRESIDENTS OF CLASSES

CLASS OF 1916
Miss Mildred Memory
1 Kermit Road
Maplewood, N. J.

CLASS OF 1917
Mrs. Hazen Hoyt
3558 65th Street
Woodside, L. I.

CLASS OF 1918
Mrs. Louise Holbrook Baldwin
1669 Columbia Road
Washington, D. C.

CLASS OF 1919
Mrs. Joseph M. Couse
1203 Jeffrey Street
Asbury Park, N. J.

CLASS OF 1920
Miss Ruth Taft
294 Macon Street
Brooklyn, N. Y.

CLASS OF 1921
Miss Margaret Briggs
1505 Jefferson Avenue
Scranton, Pa.

CLASS OF 1922
Miss Eva Wagner
Lincoln School
425 West 123rd Street
New York City

CLASS OF 1923
Miss Grace Ely
6 Kendall Green
Washington, D. C.

CLASS OF 1924
Miss Sallie Serson
34th and Chestnut Streets
Philadelphia, Pa.

CLASS OF 1925
Miss Helen Warren
The Garrison Forest School
Green Spring Valley
Garrison, Md.

CLASS OF 1926
Miss Yvonne Fassler
542 Second Avenue
Pelham, N. Y.

ALUMNI NOTES

Virginia Goss (B.S. 1929) has received an appointment in the speech improvement department of the elementary schools of Newark, N. J. Miss Goss will continue as a part-time student at Teachers College, working for her M.A. with her major interest in speech education.

Helen Geyer (A.M. 1927) has a position in the speech department at Hunter College this semester.

Olivia Hobgood (A.M. 1929) will spend the coming six months in London, studying at the Royal Academy of Dramatic Art and at the Central School of Speech. In September Miss Hobgood will go to Wellesley College to teach voice and diction.

C. E. Campton (A.M. 1928), who has been superintendent of schools of School District No. 2, Lake County, Minn., since 1915, was elected at the first meeting of the County Board of Education in February, superintendent

of schools of the county district of Lake County for the ensuing school year. Formerly Mr. Campton had forty-seven townships under his supervision. He will now have the entire county. This was made possible by a bill recently passed in Minnesota.

Garry Cleveland Myers (Ph.D. 1913) is head of the division of parental education, Cleveland College, Western Reserve University, and editor of *Babyhood,* a magazine for parents of little children. He was formerly head of the department of psychology, Cleveland School of Education. He has also been giving a series of sixteen radio talks over WLW, Cincinnati, on home education of pre-school children. Under the general title "Problem Parents" Dr. Myers has written a series of thirteen articles for the *Child Welfare Magazine,* the official organ of the National Congress of Parents and Teachers. At the request of the United States Commissioner of Education Dr. Myers wrote a series of eleven letters to parents under the title "Helping Our Children Succeed in School." These letters are free to all parents whose names and addresses are sent to the United States Bureau of Education, Washington, D. C.

OKLAHOMA TEACHERS COLLEGE CLUB

Fifty-nine alumni and former students of Teachers College and Columbia University gathered for their annual banquet at the Skirvin Hotel, Oklahoma City, February 8, during the meeting of the State Educational Association. All but two of the fifty-nine present are now in educational work. Twenty different states were represented.

The program was under the direction of Mr. J. R. Holmes, Superintendent of Schools, Okmulgee, who was an able toastmaster. Special guests for the evening who gave inspirational messages were Dr. Henry Turner Bailey, Cleveland School of Art, Dr. R. L. Cooley, director of Milwaukee Vocational Trade School, and Dr. Walter D. Cocking, professor of educational administration, Peabody College for Teachers. The influence of Teachers College in present-day education was discussed by three Oklahoma educators: Dr. A. Linscheid, president of Teachers College, Ada; Mr. J. R. Barton, superintendent of schools, Oklahoma City; and Mr. W. W. Parker, president of Teachers College, Alva. The officers elected for next year are: Dr. A. Linscheid, president of State Teachers College, Ada, president, and Miss Lotta Allen Meacham, Oklahoma City, secretary.

HARRISBURG TEACHERS COLLEGE CLUB

The Harrisburg Teachers College Club held its Fall dinner meeting on Wednesday evening, December 5, 1928, at the Harrisburg Civic Club, with eighty-three guests in attendance. It was a real honor to have Dean William F. Russell as guest speaker. He spoke of plans for certain changes in Teachers College, particularly stressing his desire to have instructors and students become better acquainted. He also mentioned the widespread influence of Teachers College, due to the fact that Teachers College graduates are filling places of prominence in education in all parts of the world. Other special guests were Dr. John A. H. Keith, superintendent of public instruction of Pennsylvania, and Mrs. Keith; Dr. C. H. Garwood, superintendent of Harrisburg schools; and seven members of the Harrisburg School Board. Miss Helen Krall, president of the club, presided.

RESULTS OF THE ALUMNI ELECTIONS

President

Dr. J. Cayce Morrison, Assistant Commissioner for Elementary Education, New York State Department of Education, Albany, N. Y.

Second Vice-President

Dr. Velda C. Bamesberger, Director of Elementary Education, Board of Education, Toledo, Ohio.

Corresponding Secretary

Miss Katherine I. Sherwin, Executive Secretary of Student Organizations, Teachers College.

Treasurer

Mr. Clyde R. Miller, Director, Bureau of Educational Service, Teachers College.

Alumni Trustee

To be announced after the next meeting of the Board of Trustees of Teachers College, and published in the October number of THE RECORD.

YEARBOOKS

Yearbook of the International Institute

Educational Yearbook—1927

Edited by I. L. KANDEL. 618 pp. Cloth, $3.50. [1928]

This volume presents descriptions of the educational systems of fourteen countries—Belgium; Denmark; England; France; Germany; Hungary; Iraq; Lithuania; Mexico; Russia; Serbia, Croatia, and Slovenia; Spain; Turkey; and the United States—and discusses their major problems in educational development. A section of the book is devoted to Teacher Training in England, France, Germany, and the United States. Each article has been prepared by an eminent authority on education in the country surveyed.

Yearbook of the National Council of Teachers of Mathematics

Fourth Yearbook—Significant Changes and Trends in the Teaching of Mathematics Throughout the World Since 1910

Edited by WILLIAM D. REEVE. 186 pp. Cloth, $1.75. [1929]

Yearbook of the National Society for the Study of Educational Sociology

Second Yearbook—Objectives of Education

Prepared by PHILIP W. L. COX, CHARLES C. PETERS, and DAVID SNEDDEN. 185 pp. $1.50. [1929]

Yearbook of the Conference of Supervisors and Directors of Instruction

Second Yearbook—Scientific Method in Supervision

A Report by a Committee of the Conference, L. J. BRUECKNER, Chairman. 320 pp. Paper, $2.00. [1929]

BUREAU OF PUBLICATIONS
TEACHERS COLLEGE, COLUMBIA UNIVERSITY
NEW YORK CITY

PEARSON AND KIRCHWEY'S

New Essentials of English

Lower Grades, $0.72—Middle Grades, $0.80—Higher Grades, $0.96

By HENRY CARR PEARSON, formerly Principal of Horace Mann School, Teachers College, Columbia University, and MARY FREDERIKA KIRCHWEY, Instructor in Horace Mann Elementary School, Teachers College, Columbia University.

THE teaching of English in these books is made still more scientifically effective. The treatment reflects not only the work of the authors but also the studies made in various important school systems throughout the country. The training is begun before the pupil is hampered by self-consciousness and is based on real situations and interesting projects that give the pupil a definite purpose. Individual differences, diagnostic tests, practice in drill material are amply provided for. Each book contains two years' work.

AMERICAN BOOK COMPANY

New York Cincinnati Chicago Boston Atlanta

THE PATHWAY TO READING

Coleman
Uhl
Hosic

FROM the Primer, with the child's own world of mingled realism and fancy, to the Eighth Reader, with classical and modern masterpieces of English literature, THE PATHWAY TO READING gives the variety of recreational and work type reading needed for the elementary course. With accurately graded material, with supplementary cards, and with silent reading selections, the child learns to read with ease and skill, and gains an appreciation of the many kinds of good literature. To help the teacher, there are four manuals and ample material for scientific measurement tests. These are a few of the reasons why THE PATHWAY TO READING is used in every state in the nation.

SILVER, BURDETT AND COMPANY

New York Newark Boston Chicago San Francisco

Announcing

BOOKLETS OF RELATED READING ACTIVITIES

(Self-Directed Seatwork)

for use with

The Child's Own Way Series

by

Marjorie Hardy

Write for Prices and Specimen Pages

WHEELER PUBLISHING COMPANY
2831-35 South Park Way
CHICAGO

WE COVER THE EARTH

Here is the list of countries to which SCHOOL SCIENCE AND MATHEMATICS goes each month:

Every State in the United States, every Province in Canada, Mexico, Cuba, Porto Rico, Brazil, Argentine, Colombia, England, Scotland, Ireland, Wales, Holland, Belgium, France, Norway, Sweden, Finland, Germany, Esthonia, Czecho-Slovakia, Russia, Jugo-Slavia, Bulgaria, Turkey, Palestine, Egypt, South Africa, Ceylon, India, China, Korea, Japan, Philippines, New Zealand, Australia, and Hawaii.

The only Journal in the English language devoted primarily to the needs of Science and Mathematics Teachers. Remember this when deciding upon your subscription list of periodicals for Science and Mathematics.

Business houses selling books, apparatus and school supplies will do well to place their advertisements in this Journal. Any proposition for secondary schools, or for teachers in such schools, will reach a maximum of prospective customers, if advertised in SCHOOL SCIENCE AND MATHEMATICS.

This Journal is the only periodical whose pages are devoted to all phases of progressive Secondary Science and Mathematics Teaching. Leading libraries keep this Journal on their magazine shelves and it is widely used by Colleges and Universities as a reference for courses in education.

Canada $2.75 Price $2.50 a Year Foreign Countries $3.00

SCHOOL SCIENCE AND MATHEMATICS

Published by

CENTRAL ASSOCIATION OF SCIENCE AND MATHEMATICS TEACHERS INCORPORATED

Nine issues a year. No numbers published for July, August and September.

1439 14th St., Milwaukee, Wisconsin

American Childhood

A year's subscription to this magazine is equivalent to the purchase of Progress Insurance—an endowment policy, which pays liberally each month of the school year in interest, inspiration, and successful method.

Every issue contains, in addition to its feature articles and suggested method, definite and practical seat work, stories to read, pictures to cut out and study, treatises on the modern teaching of reading, writing, and arithmetic, music, timely blackboard designs, "Art for Children," a department conducted by Louise D. Tessin, illustrated news stories of interesting phases of child training, worthwhile book reviews, and miscellaneous items of interest to teachers—a wonderful offering of extraordinary value.

Buy Your Progress Insurance Now by Subscribing to

AMERICAN CHILDHOOD

at the low subscription price of $2.00 a year

MILTON BRADLEY COMPANY

SPRINGFIELD, MASSACHUSETTS

JOIN THE NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS!

The National Council of Teachers of Mathematics (Incorporated) is a national organization of mathematics teachers in elementary and secondary schools which keeps in touch with its members and carries on its work through two publications:

The Mathematics Teacher. A magazine published monthly except in June, July, August and September. It is the only magazine in America which deals exclusively with the teaching of mathematics in elementary and secondary schools. Membership in the Council entitles one to receive the magazine free.

Since no organization is any stronger than the membership it can attract, every teacher should help the Council by becoming a member. The National Council of Teachers of Mathematics has decided to publish a register of all members as a supplement to one of the forthcoming issues of The Mathematics Teacher. This register will serve as a sort of "Who's Who?" in mathematics and all teachers of mathematics will wish to be included. The register will be sent free to all who are members at the time of publication. Any teachers of mathematics who are not now members should send in the annual dues of $2 at once to THE MATHEMATICS TEACHER, 525 West 120th Street, New York, N. Y.

The National Council Yearbooks. The first Yearbook on "A General Survey of Progress in the last Twenty-five Years" is now out of print. The second on "Curriculum Problems in Teaching Mathematics" may be secured for $1.25, and the third on "Selected Topics in Teaching Mathematics" may be obtained for $1.75 (bound volume) from the BUREAU OF PUBLICATIONS, TEACHERS COLLEGE, 525 West 120th Street, New York City.

Recent Contributions to Education

HOW SCHOOLS USE THEIR TIME: Time Allotment Practice in 444 Cities, Including a Study of Trends from 1826 to 1926. By Carleton Hunter Mann, Ph.D. 202 pp. Cloth, $2.00.

THE BEGINNINGS OF EDUCATION IN MAINE. By Ava Harriet Chadbourne, Ph.D. 135 pp. Cloth, $1.50.

ADMINISTRATIVE PROCEDURES IN CURRICULUM MAKING FOR PUBLIC SCHOOLS. By Walter D. Cocking, Ph.D. 120 pp. Cloth, $1.50.

PROFESSIONAL TESTS AS MEASURES OF TEACHING EFFICIENCY IN HIGH SCHOOL. By Charles W. Boardman, Ph.D. 85 pp. Cloth, $1.50.

THE IMPROVEMENT OF MEASUREMENT THROUGH CUMULATIVE TESTING. By Noel Keys, Ph.D. 81 pp. Cloth, $1.50.

AN APPRAISAL OF A SOCIAL STUDIES COURSE: IN TERMS OF ITS EFFECT UPON THE ACHIEVEMENT, ACTIVITIES, AND INTERESTS OF PUPILS. By Velda C. Bamesberger, Ph.D. 91 pp. Cloth, $1.50.

AN ANALYTICAL STUDY OF TEACHING IN NURSERY SCHOOL, KINDERGARTEN, AND FIRST GRADE. By Winifred E. Bain, Ph.D. 130 pp. Cloth, $1.50.

DIFFERENCES IN THE ACTIVITIES OF TEACHERS IN RURAL ONE-TEACHER SCHOOLS AND OF GRADE TEACHERS IN CITIES. By Verne McGuffey, Ph.D. 65 pp. Cloth, $1.50.

PERSONNEL STUDY OF DIRECTORS OF PHYSICAL EDUCATION FOR MEN IN COLLEGES AND UNIVERSITIES. By Harry Alexander Scott, Ph.D. 85 pp. Cloth, $1.50.

Bureau of Publications
Teachers College, Columbia University
New York

Recent Contributions to Education

CONSIDERATIONS IN ESTABLISHING A JUNIOR COLLEGE. By JOHN T. MORRIS, PH.D. 63 pp. Cloth, $1.50.

THE CONSTRUCTION OF JUNIOR CHURCH SCHOOL CURRICULA. By EDNA LUCILE ACHESON, PH.D. 185 pp. Cloth, $1.75.

PERSONAL TRAITS AND SUCCESS IN TEACHING. By ELIZABETH HUNT MORRIS, PH.D. 75 pp. Cloth, $1.50.

LIBRARY FACILITIES OF TEACHER-TRAINING INSTITUTIONS. By GEORGE WALTER ROSENLOF, PH.D. 157 pp. Cloth, $1.50.

THE MODIFIABILITY OF RESPONSE TO TASTE STIMULI IN THE PRESCHOOL CHILD. By MARGUERITE ELSTON GAUGER, PH.D. 54 pp. Cloth, $1.50.

Recent General Publications

THE TEACHER'S HANDBOOK. By W. S. ELSBREE, H. R. HALSEY, and E. S. ELSBREE. 290 pp. Cloth, flexible binding, $2.50.

SCHOOL FINANCE AND BUSINESS MANAGEMENT PROBLEMS. By N. L. ENGELHARDT and CARTER ALEXANDER. 526 pp. $4.75.

AN INVENTORY OF THE HABITS OF CHILDREN FROM TWO TO FIVE YEARS OF AGE. By RUTH ANDRUS. Paper, 50 cents.

CHECK LIST FOR EDUCATIONAL RESEARCH. By HAROLD H. BIXLER. 118 pp. Cloth, $1.50.

HOW TO CLASSIFY PUPILS. By WILLIAM A. MCCALL and HAROLD H. BIXLER. 83 pp. Cloth, $1.50.

SCHOOL BUILDING MANAGEMENT: THE OPERATION AND CARE OF SCHOOL PLANTS. By CHARLES E. REEVES and HARRY S. GANDERS. 391 pp. $3.75.

THE ENRICHED TEACHING OF SCIENCE IN THE HIGH SCHOOL. By MAXIE N. WOODRING. Cloth, $2.75.

BUREAU OF PUBLICATIONS
Teachers College, Columbia University
NEW YORK

The Gates Silent Reading Tests

THE GATES SILENT READING TESTS are designed to accomplish—at one and the same time and with a minimum of uncertainty and expense—three distinct purposes:

1. To secure an objective measure of reading ability in terms of "reading age" and "reading grade."
2. To secure an objective diagnosis of strengths and weaknesses in the most significant reading abilities.
3. To suggest directly the kind of remedial instruction most needed by each pupil.

Two series of tests have been constructed, each consisting of a team of tests devised for those skills which are absolutely essential to successful reading.

GATES PRIMARY READING TESTS

For Grades 1 and 2 and in some cases for the first half of Grade 3. The team comprises three tests—

Type 1. Recognition of Words.

All the words are from a carefully selected list determined by various studies and printed in Gates "Primary Reading Vocabulary."

Type 2. Reading of Words, Phrases, and Sentences.

The reading units increase from simple to more complex.

Type 3. Reading of Paragraphs of Directions.

Each paragraph gives a direction to be executed by a simple mark. To execute the direction, however, the pupil must grasp the whole paragraph. The paragraphs increase in length and complexity.

What each pupil's special strengths and deficiencies are is indicated by comparing the results of the three tests. The Manual of Directions illustrates each type of difficulty and gives full directions for remedial instruction. The results give an almost automatic diagnosis of outstanding difficulties and indicate very definitely the type of remedial treatment most needed.

GATES READING TESTS GRADES 3 TO 8

The team comprises four tests—

Type A. Reading to Appreciate the General Significance of a Paragraph.

These tests measure speed and accuracy in getting the general drift or significance of a passage.

Type B. Reading to Predict the Outcome of Given Events.

This test requires more "reading between the lines," a deeper grasp of the situation depicted. Comprehension is tested by ability to tell which of several things is "most likely to come next."

Type C. Reading to Understand Precise Directions.

This test requires both a very full and a very exact understanding of a paragraph. It measures ability to do very exacting reading.

Type D. Reading to Note Details.

Test D measures ability to analyze and identify significant details in a passage.

When the scores for the four tests of this team are combined (by a simple technique) an excellent measure of general reading skill is provided. The Manual of Directions gives concrete pictures of the different types or patterns of abilities and disabilities, explains how the test results indicate each type, and present in detail the proper remedial procedures.

All of these tests are group tests, and are easily administered. All are based upon a suitable vocabulary, determined by extensive studies of words. The comprehension tests are composed of attractive materials written by especially trained writers and selected experimentally. The scoring is exceedingly rapid and mechanical. Norms of average attainments and of highest attainments of average New York City pupils for each age and grade.

THE COST OF THE TESTS

Primary Team of 3 tests: $6.00 per 100. Teachers Manual, 40 cents. Grades 3 to 8 Team of 4 tests: $8.00 per 100. Teachers Manual, 25 cents.

BUREAU OF PUBLICATIONS
Teachers College, Columbia University
NEW YORK CITY

Standard Test Lessons in Reading

By Wm. A. McCall and Lelah Mae Crabbs

THESE STANDARD TEST LESSONS IN READING are a series of lessons, similar to the Thorndike-McCall Reading Scales in form, 94 lessons to a book. Four books are now ready, suitable for Grades 2 to 6. Books for other grades are in preparation. These Lessons—

—Embody in practical form scientific principles of teaching speed and comprehension in silent reading.
—Incorporate a test in every lesson and a lesson in every test.
—Yield standard G scores with each test which reveal whether the pupil's reading ability equals the norm for his grade and age and indicate automatically his proper grade classification in reading.
—Yield standard G scores with each test that are comparable from lesson to lesson and from book to book and hence show growth from day to day and year to year, permit dull and bright pupils to compete with their own past records rather than with each other.
—Are scored by pupils themselves under the leadership of some one of the pupils according to answers which they have discussed and agreed upon.
—Provide a cumulative record card for each pupil on which all answers are written and all G scores recorded and preserved, thus permitting the books to be used from class to class and from year to year.
—Develop the ability to comprehend rapidly and accurately all kinds of interesting, novel, and intrinsically valuable reading material.
—Give direct training in the ability to read the content of geography, arithmetic, and other texts.
—Teach pupils how to read carefully and accurately for detail, to read for the main points, to draw inferences where facts are not overtly stated, etc.
—Make it possible for pupils to appreciate more difficult literature and literature of a wider range, and to increase their joy in literature by reserving the appreciation period primarily for appreciation, thus leaving to the more efficient *Standard Test Lessons in Reading* the function of developing comprehension.

TEST LESSON 88

One day in the warm weather of May, a man decided to make a garden for the first time. In his back yard he planned to grow radishes, lettuce, cabbage, and beans. He bought the seeds and planted them. Every day he went to see if they had come up. The bright sun and then the warm rain caused them to grow very quickly. The man was much pleased with everything except the beans.

"I shall never try to grow beans again," he said one day to his neighbor who was also out in his garden. "The seeds won't stay in the ground. Only this morning I had to cover them all over again."

What do you think the neighbor told him?

1. The man planted his garden in the (a) spring; (b) summer; (c) autumn; (d) winter.
2. He told his troubles to his (a) son; (b) wife; (c) neighbor; (d) father.
3. The man had made gardens (a) many times; (b) twice; (c) once; (d) never.
4. The seeds were planted in (a) a flower-pot; (b) a window box; (c) the back yard; (d) the front yard.
5. The garden was planted with (a) vegetables; (b) flowers; (c) fruit; (d) berries.
6. This man needed to study (a) carpentry; (b) gardening; (c) painting; (d) buying and selling.
7. What the man did not know was (a) how to plant beans; (b) the way to water his garden; (c) that bean seeds are pushed above the ground; (d) how to cover the beans.
8. The way the beans grew made the man (a) angry; (b) happy; (c) contented; (d) discouraged.
9. The best thing for the neighbor to tell him was to (a) buy better seed; (b) leave the plants alone; (c) keep covering them over; (d) plant the seeds deeper.
10. This story tells you that (a) only farmers should try to grow things; (b) all plants do not come up in the same way; (c) beans are not worth the trouble that it takes to grow them; (d) never ask any one about what troubles you.

No. right	0	1	2	3	4	5	6	7	8	9	10
G score	1.5	2.2	2.8	3.4	4.0	5.0	5.8	6.7	7.7	9.2	10.2

The cost per pupil is slight. Each book is 25 cents a copy, including Student Record Card. Additional Record Cards, 25 cents a dozen. Teacher's Manual, 15 cents. Specimen Set, consisting of Book 3, for Grade IV, one Student's Record Card, and Teacher's Manual, 50 cents.

Bureau of Publications
Teachers College, Columbia University
New York City

Two New Series

STANDARD PROCEDURES IN EDUCATION

***Edited by* WILLIAM A. McCALL**

A professional rather than an academic aim will distinguish the books which are to be issued in this series. The principles presented will be embodied in practical operating procedures so that they can be applied directly to the education of pupils. Procedures helpful in the everyday work of teachers and principals will be described in detailed sequence and with primer simplicity.

The first volume:

HOW TO CLASSIFY PUPILS. *By* WILLIAM A. McCALL and HAROLD H. BIXLER. 83 pp. Cloth $1.25.

The authors of this first volume in the series have described step by step in simple one-two-three order just exactly how they would and do proceed to classify pupils in the various types of elementary and junior high schools, and how they would deal with special situations or cases arising in connection therewith. The principles of classification are discussed, but always in intimate relation to the processes in which they are embodied.

Contents: How to Select Tests. How to Administer Tests and How to Obtain Crude Scores. How to Transmute Crude Scores into Grade Scores. How to Compute Grade Scores When Several Tests have been Used. How to Prepare the Class Record Sheets. How to Classify When Promotions are Semi-Annual. How to Handle Unusual Situations. How to Construct G. Tables for Tests. How to Secure Tests and Test Materials. Suggestions for Further Reading.

STANDARD RESEARCH PROCEDURES

***Edited by* WILLIAM A. McCALL**

This new series is designed to help secure an adequate description of research techniques, including a sound interpretation and an effective presentation of data resulting from the application of such techniques. The series will aim to encourage the codification, refinement, and origination of research methods that are applicable to research of any kind in any field, together with those procedures particularly applicable to education.

The first volume:

CHECK LISTS FOR EDUCATIONAL RESEARCH. *By* HAROLD H. BIXLER. 118 pp. Cloth $1.50.

This first volume treats of more types of research procedures than any book previously published.

Contents: The Construction of the Check Lists and Their Use in Research. Selection and Formulation of a Research Problem. Methods of Research. Techniques Used in Research. Statistical Methods Used in Research. The Presentation of the Research. The Application of the Check Lists in the Analysis of Published Researches.

BUREAU OF PUBLICATIONS
Teachers College, Columbia University
NEW YORK CITY

WINSTON

Where are these to-day?

The old gives way to the new—in dictionaries as in automobiles. Your dictionary may be as out-of-date as these "horseless carriages." Not, however, if it is THE WINSTON SIMPLIFIED DICTIONARY, for this work is as modern as the Model A Ford and the newest Packard Eight. Not only in the inclusion of new words, but in the whole tone and outlook of the book, this dictionary is a true reflection of current American good usage. Its unusual simplicity of definition is but one of its many distinctive and outstanding features.

THE WINSTON SIMPLIFIED DICTIONARY

Advanced Edition, $2.64 With Index	$2.88
Intermediate Edition, 44,000 words	1.20
Primary Edition, 28,000 words	.80

THE JOHN C. WINSTON COMPANY

Winston Building **Philadelphia**

FOR TEXTBOOKS

"But I Supposed Professional Reading HAD to be Dull!

So did a lot of educators before the Journal of Education convinced them otherwise.

Men and women in pivotal positions all over the United States rely upon this weekly magazine to keep them informed—painlessly.

The wide awake executive, administrator or teacher finds practical help in every issue.

He opens the wrapper with the same eagerness he would open a window looking out over the world of educational thought and progress.

We had almost called it the NEW Journal of Education—so interesting, so stimulating and so vital has it become.

Winship's Editorials; Belding's Page of pointed comment; School Problems; Education in Action; and other regular features. Crisp, authoritative articles by a host of writers.

A copy should come to you personally—a copy should be in the library of your school or college—a copy should be readily accessible to every teacher.

The cost is only $3.00 a year, comprising 48 issues of this time-saving magazine for educators.

JOURNAL OF EDUCATION

Six Beacon Street **Boston, Mass.**

THE N.E.S.

THE BIG TEACHERS' AGENCY

We can secure a better position for you at a cost of only $10.00.

Write to our Main Office for Free Literature

Do it now; we'll do the rest

National Educational Service, Inc.

MAIN OFFICE
SEVENTEENTH AT OGDEN
DENVER, COLO.

WILMINGTON DENVER CHICAGO

FRENCH SUMMER SCHOOL

McGILL UNIVERSITY
MONTREAL, QUEBEC
June 26th, to July 31st, 1929

Thoroughly French Atmosphere
Only French Spoken
Entirely French Staff
Elementary, Intermediate and Advanced Courses

MORNING—Lectures and Class Room Instruction

AFTERNOON—Group Conversation, Sight-seeing, Sports

EVENING—Concerts, French Plays, Entertainments, Illustrated Lectures

Write for Circular to the

SECRETARY, FRENCH SUMMER SCHOOL
McGill University
MONTREAL QUEBEC

THE J. M. HAHN TEACHERS AGENCY

A Western Placement Bureau
Elementary, Secondary, College

Always in quest of outstanding educators for important positions. Teachers with higher degrees in demand. *Doctors of Philosophy* urgently needed for college and university positions now listed.

J. M. HAHN and Blanche Tucker
Managers
2161 Shattuck Avenue
BERKELEY CALIFORNIA

ADVERTISEMENTS

SCHOOL AND SOCIETY

EDITED BY J. McKEEN CATTELL

WITH WHICH IS COMBINED THE

EDUCATIONAL REVIEW

EDITED BY WILLIAM McANDREW

The EDUCATIONAL REVIEW *was established in 1890 by Dr. Nicholas Murray Butler, now president of Columbia University, and was edited by him for twenty-nine years. The editorship was then taken by Dr. Frank Pierrepont Graves, and after he had become New York State Commissioner of Education, by William McAndrew, recently superintendent of the Chicago schools. The* EDUCATIONAL REVIEW *maintained for nearly forty years the highest standards, having been, as Joy Morgan, editor of the* JOURNAL OF THE NATIONAL EDUCATION ASSOCIATION, *remarked "the* ATLANTIC MONTHLY *of the educational group." The magazine has now been combined with SCHOOL AND SOCIETY, Mr. McAndrew continuing as editor of the* EDUCATIONAL REVIEW *section. Previously* THE SCHOOL JOURNAL, *established in 1874, and* THE TEACHERS MAGAZINE, *established in 1878, had been merged in SCHOOL AND SOCIETY. It is hoped that the interests of education will be best served by the weekly publication of a single journal having the united support of all students of education.*

SCHOOL AND SOCIETY, established in 1915 by J. McKeen Cattell, then professor in Columbia University and the Teachers College, and since edited by him, has maintained distinction in form, in objects and in contents. It is a weekly journal, attractive in typography and in appearance. The frequent publication permits promptness in the printing of articles and timeliness in the news; it gives continuity to educational interest. The scope of the journal, as its name indicates, is broad, covering the whole field of education and its relations to the social order. It encourages discussion of all problems from every point of view; it pays special attention to foreign affairs; it publishes accounts of educational events of the past week and research on fundamental problems. The contributors have included the leaders of education in America.

A journal such as SCHOOL AND SOCIETY promotes educational progress and maintains the standards of the profession. It aims to preserve the unity of education from the nursery school and before to the university and after, and to keep the educational system in touch with modern democratic civilization. It is in the interest of education that SCHOOL AND SOCIETY be in every educational and public library and that it be read by those in control on the boards of schools and institutions and by the more intelligent part of the general public on whom in the last resort education in a democracy is dependent. It is even more desirable that all teachers have access to a journal the reading of which is the equivalent of a liberal professional education.

$5.00 A YEAR | PUBLISHED WEEKLY | 15 CENTS A COPY

THE SCIENCE PRESS

GRAND CENTRAL TERMINAL, NEW YORK

CHARACTER BOOKS
FOR GRADES IV-V-VI

By **Curtis Gentry**

A time-saving and constructive program of character building. Abstractions are reduced to a concrete interpretation and moral values are directly applied to the everyday life of the pupil. These books supply the specific aim and systematic training without which character education can have but small effect. The teacher is provided with ready material for the guidance and inspiration of pupils. The "learning by doing" method secures the willing coöperation of the pupil.

D. C. HEATH AND COMPANY

Boston New York Chicago Atlanta San Francisco Dallas London

Courses of Study in Science and Geography

COURSE OF STUDY IN SCIENCE FOR HORACE MANN SCHOOL, GRADES I TO VI

By GERALD S. CRAIG, *Associate in Natural Science, Teachers College, Columbia University*

A course that embodies recent developments in elementary science. It assists teachers with little training in science by providing with each unit of instruction a background of information in science.

In three separate booklets: Grades I and II, Grades III and IV, and Grades V and VI. Price, 90 cents each.

HORACE MANN COURSE OF STUDY IN GEOGRAPHY FOR PRIMARY, INTERMEDIATE GRADES, AND JUNIOR HIGH SCHOOL.

By DEFOREST STULL, *Associate in Geography, Teachers College, Columbia University*

This course is more than a mere outline course of study. It includes a manual of helpful suggestions for teachers and a number of illustrations of professionalized subject matter. In addition there are fourteen illustrations of actual classroom procedures.

In one volume, 300 pp. Cloth bound, $2.25 per copy.

BUREAU OF PUBLICATIONS
TEACHERS COLLEGE, COLUMBIA UNIVERSITY
NEW YORK CITY

THE HADDON CRAFTSMEN
CAMDEN, N. J.